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THE TREATMENT OF HÆMORRHAGE FROM  
PEPTIC ULCERS.<sup>1</sup>

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THERE is perhaps no more difficult subject from the point of view of treatment than hæmorrhage from an ulcer of the stomach or duodenum. It is in fact one of the acute catastrophes of medical practice and one in which every effort for the amelioration of the unfortunate sufferer is fraught with peril. Such being the case, it is not surprising to find that the most diverse views are held as to the correct lines of procedure in such a crisis. This paper is based upon the experience gained by a study of patients treated at the Melbourne Hospital during the six year period 1919 to 1925 and is presented in the hope that it may be of some service in the elucidation of the problems that arise.

It is sometimes asserted that hæmorrhage from peptic ulceration is rarely, if ever, of sufficient severity to cause death. Though Hurst<sup>(1)</sup> states that no patient under his care has died of hæmorrhage from an ulcer, other authorities have had less success. In the Melbourne Hospital series 26 patients died of hæmorrhage from proved peptic ulceration and two more almost certainly died of hæmorrhage. During this period 280 gastric or duodenal ulcers, identified either at autopsy or operation, were observed, including 152 in which perforation had occurred. Sixty-nine of the patients gave a past history of haematemesis or melena. This figure is probably too low, as an exhaustive history was seldom elicited from patients with perforation. Forty-three were admitted suffering from a profuse hæmorrhage and of these 26 died. These figures give a false impression of an enormous mortality rate, for there were an additional 153 patients in whom from a consideration of the clinical and X ray findings a diagnosis of peptic ulceration seemed justifiable. Including these, 403 patients were treated; hæmorrhage had occurred in 187 and caused 28 deaths, the mortality rate being 6.5%. This figure does not greatly differ from that quoted by other observers; for example Bevan<sup>(2)</sup> reports a 5% mortality rate. During the same period 45 patients died from perforation, a mortality rate of 10.4%. It will thus be seen that death from hæmorrhage from peptic ulcer is not a rare occurrence and that the question of the most effective treatment of this complication merits discussion.

Taking a broad view, it would at first sight appear reasonable to hope that in these days of comparative enlightenment, when people of all classes take an interest in their appendices, their gall bladders, their teeth sockets *et cetera*, gastric ulceration and with it hæmorrhage would gradually disappear from

among the list of human ills. Such hopes seem to be the reverse of the facts. Either our profession is on the wrong track or some other factor nullifies its efforts. From the therapeutic standpoint the problem still is how to deal with the ulcer or the hæmorrhage when it has occurred.

In order to treat these patients effectively a clear conception of the lesion is essential. It is common knowledge that there are many gradations between the tiny erosion of mucous membrane, often multiple and often difficult to find even at autopsy, and the deep fibrosed ulcer, involving all the coats of the stomach and perhaps penetrating adjacent structures. Though a rigid classification into acute and chronic ulcers may at times be somewhat artificial, it seems most nearly to fit the facts and most helpful in regard to treatment. It is now almost the universal practice for the acute ulcer to remain in the domain of the physician and for the patient with chronic ulcer to be handed over sooner or later to the surgeon. In the presence of hæmorrhage it is more than ever imperative to differentiate between acute and chronic ulceration, as the problems presented by the two conditions are very dissimilar. Impressed by the difficulties of diagnosis, some authorities, notably Paterson,<sup>(3)</sup> classify these cases into ulcers with acute hæmorrhage and ulcers with chronic hæmorrhage, but I believe that a careful history of the past symptoms will usually enable a fair estimate to be made of the chronicity of the ulcer. It is, however, necessary to remember that recurrent acute ulcers with hæmorrhage may by their periodicity simulate chronic ulcers, but this condition occurs most frequently in young women and Walton<sup>(4)</sup> does not consider it difficult to unmask.

Once a diagnosis of acute ulceration with hæmorrhage has been made, there is little diversity of opinion as to the correct method of treatment. Medical measures, of which absolute rest and administration of morphine are by far the most important, are employed and are usually successful. Small transfusions of blood are generally held to be useful; for example, Gask<sup>(5)</sup> states that 500 cubic centimetres of blood are less likely to cause than to check hæmorrhage. Sometimes in spite of all treatment or perhaps because of injudicious efforts the hæmorrhage proves fatal. When the bleeding continues until life is endangered, some authorities believe that a gastro-jejunostomy may possibly be useful, but it is difficult to assess the value of operation in these cases, for everyone has seen patients practically moribund who recover without operative interference. It is also difficult to compute the mortality of hæmorrhage from acute ulcers, for in those patients who recover, the diagnosis is necessarily only a matter of surmise.

The problem of the treatment of chronic ulceration with hæmorrhage is much more difficult. When it is remembered that it is only in comparatively recent years that surgical treatment of uncomplicated gastric ulcers has been practised and that

<sup>1</sup> Read at a meeting of the Queensland Branch of the British Medical Association on November 1, 1929.

there are still physicians of experience who would limit surgical intervention to ulcers causing pyloric obstruction or hour-glass contraction, it is not surprising that the traditional treatment for bleeding from a chronic ulcer is by medical methods, such as rest, morphine, diet, alkalis and recently transfusions. The use of the stomach tube for gastric lavage is also advocated and Brown<sup>(6)</sup> especially recommends passing a tube to just within the stomach and washing out with iced water till the return is clear. On the other hand, there is a growing body of opinion in favour of the surgical treatment of haemorrhage from chronic peptic ulceration and, therefore, the various methods advocated may be stated as follows and discussed: (i) Treatment by medical measures without recourse to surgery; (ii) medical treatment to arrest the haemorrhage, followed by operation on the ulcer after recovery from the loss of blood; (iii) medical treatment of the initial haemorrhage, with immediate operation in the event of recurrence; (iv) immediate surgical treatment.

The first method, though still adopted by some authorities, finds little general favour in the treatment of this condition and will not be further discussed.

The second method appears to receive the most general support and has been adopted in the majority of the Melbourne Hospital cases. Between 1919 and 1925 twenty-one patients with haemorrhage from chronic ulcers were treated on these lines; that is, medical treatment was instituted in each case and operation was delayed for three to five weeks, when various operations were performed. Twelve cases were completely successful, but the remaining nine patients died as the result of haemorrhage while waiting for it to cease. These patients were treated by different physicians and Sippy's, Lenhardt's or Hurst's directions were followed, though gastric lavage was not employed. It may be that they form a particularly unfortunate series or that there is some feature in Australian conditions which increases the severity of gastric haemorrhage, but I believe that the figures are in accordance with those of any other large hospital.

These deaths which were due to a recurrence or a continuation of haemorrhage, indicate the great difficulty of making an accurate prognosis in regard to this accident. If it were only possible to foretell in which ulcer bleeding would be likely to be severe, how much simpler treatment would be. Some authorities believe that duodenal ulcers on account of their proximity to large vessels are more liable to persistent haemorrhage than gastric ulcers, but of the nine fatal ulcer cases quoted above seven were gastric and two duodenal. A study of the cases in this series, however, confirms the view that the very first haemorrhage is seldom fatal, as of fifty-nine patients with a history of haemorrhage from a proved chronic ulcer, in only one instance was the first haematemesis fatal and in this patient melena had been frequently observed for two years. Thus in no instance did continued haemorrhage occur

without remission after the first haemorrhage, but the remission may be short and, as the case quoted above shows, too much faith should not be reposed in the dictum, "the first haemorrhage will not be fatal," for melena can readily occur unnoticed. Patients with prolonged histories of recurring ulcer pain showed no increased liability to serious haemorrhage, but in those with repeated haemorrhage there was a definite tendency for each succeeding haemorrhage to be more and more severe. Haemorrhages recurring at short intervals are most liable to prove fatal, death being due to the actual loss of blood or from complications such as hypostatic pneumonia, suppurative parotitis and uræmia. On microscopical examination of the kidneys in several fatal cases I have found considerable renal degeneration and in each of three exsanguinated patients of this type the blood contained over 200 milligrammes of urea per 100 cubic centimetres.

Notwithstanding any help that may be obtained from a consideration of the foregoing, the difficulties of making a prognosis as to future haemorrhage remain imponderable and this fact, together with the mortality of patients treated medically, has led some authorities, notably Balfour,<sup>(7)</sup> to support the third method of treatment, that of preliminary medical measures followed by immediate operation if the bleeding recurs. In the Melbourne Hospital series only one patient was treated on these lines and the patient died. What happened more often was that after three or four haemorrhages at short intervals when the patient's condition had become desperate, surgeons were persuaded to attempt the impossible by operation. Five patients were treated thus with only one successful result. Further experience has been equally melancholy and it is impossible to condemn operations under these conditions too strongly. The advantages of transfusions, saline infusions and gas or local anaesthesia do not compensate for the deplorable condition of the patient and hurried surgical measures, even should they be effectual in checking the haemorrhage, are seldom followed by the recovery of the patient.

Impressed by the dangers resulting from any delay, Sherren,<sup>(8)</sup> Walton,<sup>(9)</sup> Finsterer,<sup>(10)</sup> Gordon-Taylor<sup>(11)</sup> and Hutchison<sup>(12)</sup> all advise early operative interference. In this series only one patient was treated on these lines and the result was successful, but Gordon-Taylor quotes 24 immediate operations with only two deaths.

Among the advocates of early surgical intervention opinion is not unanimous as to just when it is best to operate. Sherren advises that operation be performed as soon after the first haemorrhage as possible, usually within thirty-six to forty-eight hours. Gordon-Taylor is inclined to give up waiting at all, but to operate during the course of the haemorrhage. On the other hand, I have been impressed by the way in which these patients improve after a few hours' rest in bed. The excitement and nervousness, necessarily attendant on

admission to hospital, soon pass off and I have not yet seen a patient with haematemesis who has not been at least moderately suitable for operation within two or three hours of admission. In fact it was because I was so constantly and forcibly struck by this fact and by the poor results of medical treatment that this paper was written.

At the time of the first haemorrhage the patient is usually in sufficiently good condition to undergo an operation, but if the haemorrhage recurs this may no longer be the case. Each case must be considered on its merits, but I believe that, as a general rule, more lives will be saved by early operation than by routine medical treatment of patients suffering from haemorrhage from a chronic ulcer. Ogilvie<sup>(13)</sup> states that immediate operation proved to be relatively unsuccessful immediately after the war, but during the last ten years gastric surgery has certainly not stood still and in skilled hands early operation may yet prove to be the method of choice.

Diverse views are held as to the actual operative measures necessary, but all subscribe to one fundamental principle, namely, a direct attack on the bleeding point. Blood transfusions and gas or local anaesthesia are important adjuncts for success.

#### Conclusions.

1. Haemorrhage from chronic peptic ulcer not uncommonly causes death.
2. The first haemorrhage is very seldom fatal.
3. Medical treatment is frequently unsuccessful in checking haemorrhage.
4. In skilled hands, operation without waiting for recurrence may prove the safest form of treatment.

#### Acknowledgements.

I have to thank the staff of the Melbourne Hospital for permission to publish details of their cases and also I wish to thank Mr. Alan Newton for his kindly interest and advice in the preparation of this paper.

#### References.

<sup>(1)</sup> A. F. Hurst: Discussion on "The Treatment of Severe Gastric and Duodenal Haemorrhage," *Proceedings of the Royal Society of Medicine*, Volume XVII, March 5, 1924, page 1.

<sup>(2)</sup> A. D. Bevan: "Haemorrhage from the Stomach," *Surgery, Gynecology and Obstetrics*, Volume XXXVIII, March, 1924, page 358.

<sup>(3)</sup> H. J. Paterson: Discussion on "The Treatment of Severe Gastric and Duodenal Haemorrhage," *Proceedings of the Royal Society of Medicine*, Volume XVII, March 5, 1924, page 1.

<sup>(4)</sup> A. J. Walton: "The Surgical Dyspepsias," 1923, page 82.

<sup>(5)</sup> G. Gask: Discussion on "The Treatment of Severe Gastric and Duodenal Haemorrhage," *Proceedings of the Royal Society of Medicine*, Volume XVII, March 5, 1924, page 1.

<sup>(6)</sup> R. C. Brown: "Practical Medicine Series—General Medicine, 1927," Editorial Note, page 606.

<sup>(7)</sup> D. C. Balfour: "Management of Lesions of the Stomach and Duodenum Complicated by Haemorrhage," *Collected Papers of the Mayo Clinic*, Volume XIX, 1927, page 125.

<sup>(8)</sup> J. Sherren: "Choyce's System of Surgery," 1923, Volume II, page 386.

<sup>(9)</sup> A. J. Walton: "The Surgical Dyspepsias," page 105 and page 176.

<sup>(10)</sup> H. Finsterer: "Surgical Treatment of Ulcer of Stomach and Duodenum," *Surgery, Gynecology and Obstetrics*, Volume XXXVI, April, 1923, page 454.

<sup>(11)</sup> Gordon-Taylor: Discussion on "The Treatment of Severe Gastric and Duodenal Haemorrhage," *Proceedings of the Royal Society of Medicine*, Volume XVII, March 5, 1924, page 1.

<sup>(12)</sup> R. Hutchison: Discussion on "The Treatment of Severe Gastric and Duodenal Haemorrhage," *Proceedings of the Royal Society of Medicine*, Volume XVII, March 5, 1924, page 1.

<sup>(13)</sup> W. H. Ogilvie: "Recent Advances in Surgery," 1929, page 249.

#### THE RELATIVE RATES OF EXCRETION IN THE URINE AND REMOVAL FROM THE BLOOD OF LEAD AFTER INJECTION OF COLLOIDAL LEAD AND COLLOIDAL LEAD ORTHOPHOSPHATE.<sup>1</sup>

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THE average concentration of lead in the urine of patients injected with colloidal lead was found by the author to be 0.33 milligramme per litre. Millet<sup>(1)</sup> finds no evidence that lead injected in the form of colloidal orthophosphate is excreted in the urine. It would appear important, therefore, to contrast the rate of excretion and rate of disappearance from the blood after injection of these two forms of lead.

Some work originally undertaken by the author for another purpose throws light on this question. The animal employed for the experiment was the horse, chosen because of the large amounts of blood that could be taken for analysis.

#### EXPERIMENT 1.

A horse, weighing between 375 and 425 kilograms, was used, being kept in a stall on a standard feed throughout the experiment. To the animal there was fitted a specially designed urine collection apparatus, made in lead-free rubberized canvas, which made possible the collection of the entire output of urine night and day.

The total urine excretion for a week is given in Table I.

TABLE I.  
Urine excreted by Normal Horse.

Period.	Urine Output in c.c.m.
Monday to Tuesday ..	3,980
Tuesday to Wednesday ..	4,125
Wednesday to Thursday ..	3,840
Thursday to Friday ..	5,680
Friday to Saturday ..	4,805
Saturday to Sunday ..	5,515
Sunday to Monday ..	4,350
Monday ..	2,100

The observation started at five o'clock in the afternoon and the daily estimates were of urine excreted

<sup>1</sup> This work was carried out under the control of the Cancer Research Committee of the University of Sydney and with the aid of the Cancer Research and Treatment Fund.

up to ten o'clock each morning. The last sample was taken at five o'clock in the afternoon. The total quantity excreted in the week was 34.395 litres, yielding a daily average of 4.913 litres.

The average normal concentration of lead in the urine was found by analysis and two litre samples of blood were taken and examined for lead.

Colloidal lead was then injected intravenously into the animal, 525 milligrammes of lead (approximately one to one and a half milligrammes per kilogram) being administered in a single injection. Blood samples were taken after injection, the urine output collected and both were analysed for lead.

The results obtained are given in Table II.

TABLE II.

Estimated Quantity of Lead in Blood of Horse after Injection.

Volume of Sample of Blood, Cubic Centimetres.	When Taken.	Lead Content, Milligrammes per Litre.
1,000	Some days before injection	—
1,000	Before injection	—
500	Ten minutes after injection	3.74
1,000	One hour after injection	1.87
1,000	Twenty-four hours after injection	—
1,000	Forty-eight hours after injection	—
1,000	Seventy-two hours after injection	—

Unfortunately the method of lead estimation employed for these blood samples was unsatisfactory and the figures shown are probably low; in those samples for which no figures are given, the concentration of lead may have been up to one milligramme per litre, but not more. The method of analysis was improved for the subsequent experiments.

The average concentration of lead in normal urine was found to be 0.29 milligramme per litre. It will be noticed in Table III that the urine output after injection is slightly higher than normal, averaging 5.6 litres per twenty-four hours for the period of 74.3 hours.

TABLE III.

Estimated Quantity of Lead in Urine of Horse after Injection.

Sample.	Quantity of Urine, Cubic Centimetres.	Period in Hours.	Quantity of Lead.	
			Milligrammes.	Milligrammes per Litre.
1	8,550	26	114.0	13.3
2	3,720	24	33.5	9.0
3	5,235	24	37.5	7.15
All three	17,505	74	185.0	—

It is interesting to compare these figures with those obtained by Dilling<sup>(2)</sup> who injected cats with relatively large doses of lead and examined the lead distribution very shortly after the injection. The following table has been compiled from figures given in Dilling's paper (Table IV).

The results of this first experiment showed that the removal of lead from the blood is rapid. Assuming that the horse's body originally contained twenty-nine litres of blood, the concentration immediately after injection would be eighteen milli-

TABLE IV.  
Lead in Urine.

Lead Injected into Cat, Milligrammes per Kilogram of Body Weight.	Lead in Urine shortly after Injection, Milligrammes per Litre.
355	31
140	44
120	21

grammes per litre and this figure is reduced in one hour to a figure probably slightly greater than two milligrammes per litre. Further, the concentration of lead in the urine is great enough to enable accurate estimation to be made upon small quantities.

It was decided, therefore, to conduct the comparative work with lead and lead orthophosphate over short periods and take more frequent samples of blood and urine. Because of the greater ease with which urine samples could be obtained by catheterization at frequent intervals, it was decided to employ a mare instead of a horse.

## EXPERIMENT 2.

A mare of 375 to 425 kilograms was used. The animal was placed in a crush, the bladder emptied by catheterization and a sample of blood drawn. Colloidal lead orthophosphate was then injected, 600 milligrammes of lead (approximately one to one and a half milligrammes per kilogram) being administered at a single injection; blood and urine samples were taken for several hours. No urine was excreted between catheterizations, so that the samples included the entire output for the period of examination. The results obtained on analysis of the samples are given in Table V and Table VI.

It was decided to take blood samples at even shorter intervals in the next experiment to learn more of the rate of disappearance of lead.

TABLE V.  
Estimated Quantity of Lead in Blood of Mare after Injection.

Time Sample taken Before or After Injection in Minutes.	Volume, Cubic Centimetres.	Lead Found, Milligrammes.	Concentration, Milligrammes per Litre.
10 before	225	—	—
60 after	217	0.30	1.40
120 after	215	<0.10	<0.45
180 after	220	—	—
240 after	200	—	—
300 after	245	—	—
360 after	225	—	—
420 after	243	—	—

TABLE VI.  
Estimated Quantity of Lead in Urine of Mare after Injection.

Time Sample taken Before or After Injection in Minutes.	Volume, Cubic Centimetres.	Lead Found, Milligrammes.	Concentration, Milligrammes per Litre.
10 before	505	0.197	0.39
80 after	170	0.186	1.10
145 after	210	0.174	0.83
205 after	130	0.140	1.08
265 after	95	0.150	1.58
365 after	165	0.284	1.60
455 after	120	0.284	2.37

## EXPERIMENT 3.

After the lapse of a period of two months several urine samples were taken at intervals of a day from the mare used in experiment 2 and analysed for lead. The figures obtained are given in Table VII.

TABLE VII.  
Estimated Quantities of Lead in Urine of Mare Two Months after Injection.

Volume of Sample, Cubic Centimetres.	Lead Found, Milligrammes.	Concentration, Milligrammes per Litre.
300	0.06	0.20
232	0.07	0.30
300	0.066	0.22
250	0.073	0.29
500	0.12	0.24
Mean 0.25		

It was assumed from this result that the excretion of lead previously injected as orthophosphate had ceased and that the animal was ready for a further experiment. It was placed in a crush as before, the bladder was emptied by catheterization and a sample of blood taken. Colloidal lead, 600 milligrammes of lead (approximately 1.5 milligrammes per kilogram), was administered at a single injection and blood and urine samples were taken at the intervals shown. The urine samples up to 649 minutes after the injection included the entire output for that period. The results obtained on analysis of the samples are given in Table VIII.

TABLE VIII.  
Estimated Quantities of Lead in Blood of Mare after Second Injection.

Time Sample taken Before or After Injection in Minutes.	Volume, Cubic Centimetres.	Lead Found, Milligrammes.	Concentration, Milligrammes per Litre.
10 before	315	—	—
18 after	305	2.14	7.00
30 after	305	1.68	5.50
44 after	310	1.63	5.26
58 after	320	1.33	4.16
73 after	305	1.20	3.93
87 after	310	1.08	3.48
103 after	310	0.98	3.48
118 after	310	0.98	3.16
229 after	950	2.42	2.55
399 after	950	2.00	2.10

A summary of the figures obtained in these experiments shows that the excretion of lead after the injection of the orthophosphate preparation is very different from that which follows the injection of the colloidal metal (see Table X).

It will be noted that the urine output of the mare used in experiments 2 and 3 was very much smaller than that of the horse used in experiment 1. Unfor-

TABLE IX.  
Estimated Quantities of Lead in Urine of Mare after Second Injection.

Time Sample Taken After Injection.	Volume, Cubic Centimetres.	Lead Found, Millimetres.	Concentration, Milligrammes per Litre.
34 minutes	98	5.30	54.0
64 minutes	65	2.70	41.5
108 minutes	30	1.79	59.5
149 minutes	30	1.46	48.5
217 minutes	45	1.63	36.0
281 minutes	150	6.80	45.0
343 minutes	170	5.27	31.0
407 minutes	148	5.46	36.5
469 minutes	110	3.85	35.0
529 minutes	75	2.01	27.0
589 minutes	100	2.51	25.0
649 minutes	107	2.93	27.0
26 hours	110	1.72	15.7
48 hours	180	1.47	8.2
1 week	185	1.41	7.6

tunately, no information could be found in the literature concerning the normal output of urine from the mare and no facilities were available to us for collecting the full twenty-four hour output to investigate this point. It will be noticed, however, that the figures for the same animal in experiments 2 and 3 agree quite closely, although a period of months separated the experiments. Since there is no evidence to suggest that the administration of lead in the quantity used decreases the urine output, it appears that the normal output of the mare is lower than that of the horse.

The agreement between the lead output per hour in experiments 1 and 3 appears at first sight to suggest a constant rate of excretion of lead independent of the urine output, but it needs to be pointed out that the figure for experiment 1 is over a period of 26.3 hours, while that in experiment 3 is over the first 10.8 hours only and will constantly diminish thereafter.

The rate of excretion of lead after the injection of lead as phosphate, 0.158 milligramme per hour, is seen to be one twenty-fifth of that which follows the injection of colloidal metal (3.9 milligrammes per hour) under the same conditions in the same animal. The reasons for this are not definitely known, but two explanations suggest themselves. The first is that the difference is entirely due to the fact that the phosphate is more rapidly removed from the blood; the second is that the phosphate is comparatively stable and not readily converted to that form in which lead is excreted through the kidneys.

With regard to the first suggestion, it is shown from a comparison of experiments 2 and 3 that the phosphate is more rapidly removed from the blood, since one hour after injection the concentration

TABLE X.  
Excretion of Lead after Injection of Colloidal Lead and Colloidal Lead Orthophosphate.

Experiment.	Lead Injected. Milligrammes of Lead as		Urine Output, Cubic Centimetres.		Lead Excreted, Milligrammes.		Concentration of Lead in Urine, Milligrammes.
	Colloidal Metal.	Colloidal Phosphate.	In Hours.	Per Hour.	In Hours.	Per Hour.	
1	525	—	8,550 in 26.3	325	114 in 26.3	4.3	13.3
2	—	600	890 in 7.6	117	1.198 in 7.6	0.158	1.35
3	600	—	1,128 in 10.8	105	41.7 in 10.8	3.9	37

TABLE XI.  
*Difference of Excretion of Lead after Injection of Colloidal Lead and Colloidal Lead Orthophosphate.*

Experiment.	Lead Injected.		Period. Minutes after Injection.	Concentration of Lead in Blood, Milligrammes per Litre : Fell		Urine Excreted, Cubic Centimetres.	Lead Found, Milligrammes.	Concentration of Lead, Milligrammes per Litre.
	Colloidal Metal.	Colloidal Phosphate.		From	To			
2	-	+	80	20	1.4	170	0.186	1.1
3	+	-	64	20	4.16	163	8.0	49
	+	-	During the ninth hour	<2		100	2.51	25

has fallen to 1.40 milligrammes per litre and one hour later is less than 0.45 milligramme per litre, whereas one hour after injection of the lead the concentration is 4.16 milligrammes per litre and one hour later 3.93 milligrammes per litre. This will not altogether explain, however, the difference in excretion as can be seen from the figures in Table XI.

From Table XI it will be seen that although the average concentration of lead in the blood during the first hour after injection was at most several times less than that in experiment 3, the concentration in the urine was only one forty-fifth (1.1:49 milligrammes per litre) and further that when the lead concentration of the blood had fallen in experiment 3 to a level approximately the average for the first hour in experiment 2 (two milligrammes per litre), the concentration in the urine was twenty-three times as great (1.1:25 milligrammes per litre).

It would appear, therefore, that there is also a second factor operating. The assumption that the particles of colloidal lead as such pass through the kidneys, whilst the particles of orthophosphate cannot do so, would explain the above facts, but this is not likely, since the latter particles are smaller and also for other reasons which follow.

From the figures obtained in experiment 3 curves were plotted for the concentration of lead in the blood, the rate of urine output and the rate of excretion of lead and from these curves (see Figures I, II and III) information obtained over comparable periods as to the average excretion of lead in milligrammes per litre of urine per milligramme of lead per litre of blood. In Table XII the results are set out.

TABLE XII.

Period. Minutes after Injection.	Average Concentration of Lead in Blood, Milligrammes per Litre.	Average Output of Lead per Hour, Milligrammes.	Average Output of Urine per Hour, Cubic Centimetres.	Milligrammes of Lead per Litre of Urine per Milligramme of Lead per Litre of Blood.
Between 13 and 30	6.25	8.6	162	8.5
Between 30 and 44	5.38	6.8	144	8.8
Between 44 and 58	4.71	5.2	126	8.8
Between 58 and 73	4.04	4.2	90	11.6
Between 73 and 87	3.70	3.0	54	15.0
Between 87 and 103	3.48	2.4	42	16.4
Between 103 and 118	3.32	2.3	42	16.4
Between 118 and 229	2.70	2.5	60	15.4
Between 229 and 399	2.33	5.3	148	15.4

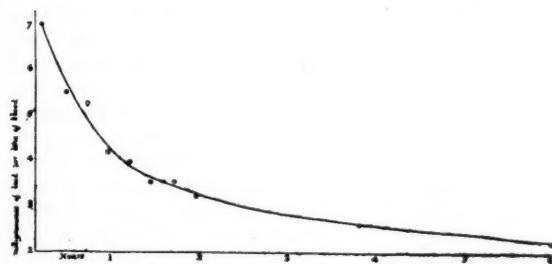


FIGURE I.  
Concentration of Lead in Blood After Injection of Colloidal Metal (Experiment 3).

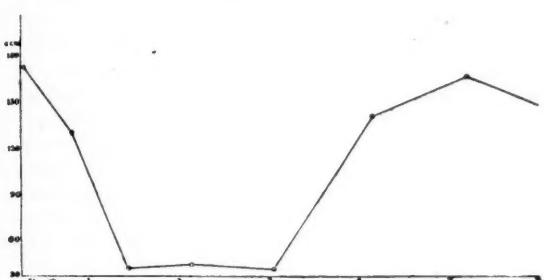


FIGURE II.  
Rate of Excretion of Urine After Injection (Experiment 3).

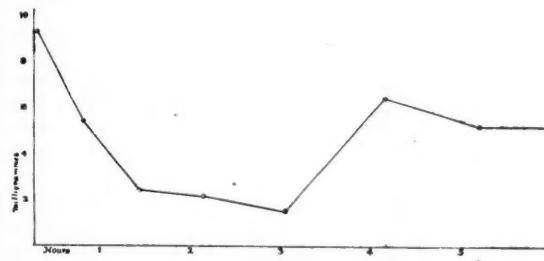


FIGURE III.  
Rate of Excretion of Lead in Urine After Injection (Experiment 3).

It will be observed that during the first hour the relative lead output is below the rate which appears to remain steady during the next five and a half hours. Two explanations may be suggested for this observation. The first is that the lead as injected must be converted to some other form before it can

be excreted by the kidney and since this takes some time to complete, only a portion of the lead in the blood is available for excretion during the first hour, whereas after that period all the lead in the blood exists in that form in which it is capable of passing the kidneys. The second explanation is that to maintain during the first hour, when the blood concentration is from 4.04 to 6.25 milligrammes of lead per litre, that proportionate rate of excretion which is reached later, it would be necessary for the excreted urine to contain 63 to 98 milligrammes of lead per litre and such concentrations are not recorded when as much as 300 milligrammes of lead per kilogram of body weight are injected into animals.<sup>(2)</sup> While the latter point may have some bearing on the observed facts, it appears from the figures in Table XIII that the former is the more important, since during the periods when the proportionate rate of excretion is below fifteen milligrammes per litre of urine per milligramme of lead per litre of blood, the rate of disappearance of lead from the blood is high (see Figure IV), thus seeming to show that the filtering process of lead particles by the tissues is still continuing.

Certain assumptions have been made in compiling Table XIII. The first is that the total volume of blood in the animals used, both of average size, is 29 litres; this figure is given in a standard work on veterinary physiology. It was assumed that the total volume of the blood decreased by almost as much as was removed for the samples, but a certain allowance was made for "make-up" by the animal. Thus, although nearly 400 cubic centimetres were removed for each sample in experiment 3 (some being used for purposes other than lead estimation), the decrease in total blood volume is allowed for at 0.3 litre per sample. The figures for total lead

excretion in the urine were obtained from curves plotted to show the progressive total output of lead, it being assumed that the rate of excretion of urine by the mare in experiment 3 remained at the figure obtained during the first 10.8 hours. If this assumption be wrong, it will err on the low side and will not affect the conclusions drawn from the figures.

From Table XIII it will be noted that in each instance the initial rate of disappearance of lead from the blood is very high, so that at the end of

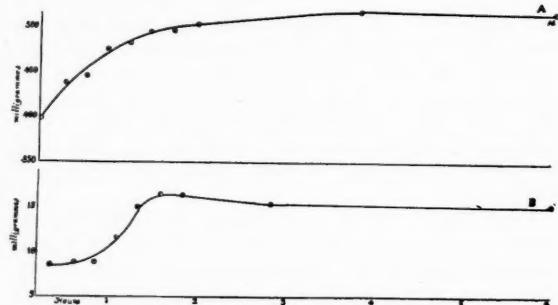


FIGURE IV.  
A = Total amount of lead removed from the blood.  
B = Lead excreted per litre of urine per milligramme of lead in the blood.

the first hour 90% and 81% respectively of the lead has left the blood in experiments 1 and 3 and 93% in experiment 2. It will be noted that the rate for this first hour is similar in all three, but at the end of the second hour less than 2.2% of the original lead is left in experiment 2 and 14% remains in experiment 3. This indicates that the initial high rate of disappearance continues with the phosphate, but such is not the case with the metallic prepa-

TABLE XIII.

Experiment.	Time after Injection.	Total Quantity of Blood, Litres.	Milligrammes of Lead per Litre of Blood.	Total Quantity of Lead in Blood, Milligrammes.	Rate of Disappearance of Lead from Blood, Milligrammes per Minute.	Total Quantity of Lead excreted in Urine, Milligrammes.	Total Quantity of Lead held in Tissues and excreted in Faeces.
1	0	29	18	525	41.7	—	—
	10 minutes	29	3.74	108			
	1 hour	28.5	1.87	53			
	26.3 hours	—	—	—			
	50.3 hours	—	—	—			
2	0	29	20.7	600	9.3	—	559.9
	1 hour	29	1.4	40			
	2 hours	28.8	<0.45	<13			
	76 hours	—	—	—			
3	0	29	20.7	600	31	—	397.5
	13 minutes	29	7.00	200			
	30 minutes	28.7	5.50	158			
	44 minutes	28.4	5.26	149			
	58 minutes	28.1	4.16	117			
	73 minutes	27.8	3.93	110			
	87 minutes	27.5	3.48	96			
	103 minutes	27.2	3.48	95			
	118 minutes	26.9	3.16	85			
	229 minutes	26.6	2.55	68			
	399 minutes	25.6	2.10	54			
	10.8 hours	—	—	—			
	26.0 hours	—	—	—			
	48.0 hours	—	—	—			
	1 week	—	—	—			

<sup>1</sup> Average for first 60 minutes after injection = 7.9 milligrammes per minute.

<sup>2</sup> Average for first 60 minutes after injection = 8.1 milligrammes per minute.

tion. It is obvious from a consideration of the figures in experiments 1 and 3 that after some time lead must come back into the blood from some of the tissues in which it has been stored. At the end of the first hour in experiment 1 only 53 milligrammes of lead were in the blood and yet 114 milligrammes were excreted in the first day and 185 milligrammes in three days. The same applies in experiment 3 in which 399 minutes after injection only 54 milligrammes of lead were in the blood and yet between that time and about forty-two hours later not less than 73.2 milligrammes of lead were excreted.

In the last column in the table is shown the total quantity of lead stored in the tissues and excreted in the faeces, in other words, all of the lead which is not actually in the blood or excreted in the urine. It will be noticed in experiment 3 that for the first 229 minutes these figures increase and then in the next 170 minutes there is a slight fall (see Figure IV); this possibly indicates the turning point at which lead commences to be liberated back into the blood. This tendency for the lead originally removed from the blood to be converted into some other form and liberated into the blood probably accounts for the rise in the rate of excretion some hours after injection in experiment 2.

The whole of the facts observed in the experiments may be explained by the following theory regarding the fate of the lead after injection. The theory is largely based on the work of Dilling.<sup>(2)</sup> Immediately following the introduction into the blood stream of colloidal lead the greater part is filtered out by the spleen. Some goes to the liver and lungs and a little is probably held in the kidney. Most of the lead in the kidney is probably rapidly excreted for a short period and this would account for the fact observed in experiments 2 and 3 that the rate of excretion at the start fell away after a short time and then rose again to higher figures when other factors increased the lead in the blood available for excretion.

Some of the lead whilst still circulating in the blood, is converted into some soluble form in which it is capable of excretion, possibly lead hydrogen phosphate ( $\text{PbHPO}_4$ )<sup>(3)</sup> and the balance continues to be filtered out by the tissues mentioned. After about one hour all the lead in the blood is in some relatively soluble form and continues to be excreted, while under the influence of some factors not definitely known, lead commences to be liberated from the tissues back into the blood. It is possible that a knowledge of these factors would permit the explanation of the very much greater rate of excretion of lead by animals than by man. The lead not excreted by the urine is either excreted in the bile and the alimentary tract or stored in the bones. Judging, however, from the fact that the rate of excretion in the urine is high and that in most animals the rate of excretion in the faeces is higher, there cannot be much lead stored.

After the injection of colloidal lead orthophosphate the behaviour is somewhat different, practically the whole of the lead being filtered out during the first two hours. Some may be held in the kidneys and from there excreted, but only a small quantity. The orthophosphate [ $\text{Pb}_3(\text{PO}_4)_2$ ] is too stable for any appreciable formation of the excretable lead compound to occur by reaction with the blood and only a very small proportion of that held by the tissues appears to be liberated in excretable form with the blood. It is admitted that the rate of excretion showed a tendency to rise in experiment 2 and may have continued to do so, but it appears unlikely in view of the work of Millet on the excretion of lead by human patients injected with phosphate that the rate would even approach that found for metallic lead.

#### The Method Employed for the Estimation of Lead in Urine.

The sample is evaporated to dryness in a silica dish on the water bath and then further dried overnight in an air oven. It is then gently ignited over a very low Bunsen flame for some hours and finally ashed in an electric muffle at a temperature considerably below 500° C. No nitric acid is added to the samples before ignition, since it was found that the alkali nitrates formed decomposed on ignition to give fusible oxides which form soluble silicates with the silica of the dish. This is doubly disadvantageous, since not only are the dishes destroyed, but the silicates are dissolved with the ash and come down at a later and inconvenient stage.

The ash is dissolved in five to ten cubic centimetres of concentrated hydrochloric acid, the solution placed in a large test tube and the reaction adjusted until the solution is just acid to methyl orange; at first a 10% or 15% sodium hydrate solution is used and toward the end a tenth normal solution. The solution is then saturated with sulphuretted hydrogen and allowed to stand overnight, after which the sulphides are removed by centrifugation, washed twice with sulphuretted hydrogen water and dissolved in a few cubic centimetres of hot 50% nitric acid. To this solution is then added one cubic centimetre of concentrated sulphuric acid and the whole evaporated to sulphurous fumes on a sand bath, after which it is cooled; finally, thirty cubic centimetres of 33.3% alcohol water mixture are added. After standing overnight the precipitate of lead sulphate is removed by centrifugation, washed twice with a 33.3% alcohol water mixture containing 3% of sulphuric acid and then dissolved in a suitable quantity of ammonium acetate solution. If the amount of lead present is small (less than one milligramme), the solution is diluted to ten cubic centimetres and an aliquot sufficient to contain 0.05 to 0.20 milligramme taken for colorimetric estimation. For this purpose selected, matched test tubes are used. Into one of the tubes the aliquot is introduced and diluted with distilled water to about ten cubic centimetres, after

which one cubic centimetre of 10% of potassium cyanide solution, 0.5 cubic centimetre of 1% gelatin and one cubic centimetre of concentrated ammonium hydroxide solution are added and the whole diluted to fifteen cubic centimetres. In a number of other similar test tubes a suitable range of standards is prepared, freshly prepared standard lead acetate solution containing 0.01 milligramme of lead per cubic centimetre being used. To each of these tubes is added an amount of ammonium acetate solution similar to that contained in the aliquot of the unknown and the other reagents as described. To all the tubes there are now added six drops of freshly prepared ammonium sulphide and the estimation completed by matching the colour of the unknown against the standard. In all estimations blanks are carried out at the same time, being subjected to exactly the same treatment throughout as the unknown and the results deducted from the final figure.

If more than one milligramme of lead is present in the sample, it is best estimated volumetrically, the chromate iodide method being used. To the ammonium acetate solution of the lead sulphate is added a small quantity of saturated potassium chromate solution and the whole kept at boiling point for ten minutes. The precipitated lead chromate is then removed by centrifugation, washed several times with a dilute ammonium acetate solution, after which it is dissolved in dilute hydrochloric acid, a few crystals of potassium iodide added and the liberated iodine titrated with 0.005 normal thiosulphate solution in the usual way.

The two methods described above have been generally used, but one other has been employed and found somewhat quicker and quite accurate for small amounts of lead (0.5 milligramme and less). The procedure is the same as that just outlined up to the point where the precipitated sulphides are dissolved in 50% nitric acid. At this point the solution is evaporated to dryness, one cubic centimetre of concentrated hydrochloric acid is added and evaporated to dryness again. There is then added one cubic centimetre of normal hydrochloric acid and the whole diluted to exactly ten cubic centimetres, of which an aliquot part is taken and placed in a small test tube, diluted to three cubic centimetres with distilled water and two cubic centimetres of freshly prepared saturated potassium metabisulphite solution are added. The turbidity is compared with that of a series of standards made up in similar test tubes, with known amounts of standard lead acetate solution, the same amount of normal hydrochloric acid as was contained in the aliquot part, two cubic centimetres of metabisulphite solution, diluted to five cubic centimetres. The tubes are allowed to stand for about one hour before being compared. The standards are most suitable between 0.002 milligramme and 0.05 milligramme. When this method has been used, known amounts of lead

added to urine have been recovered with an accuracy of 0.005 milligramme and it has the further advantage that since less reagents are employed, the blanks are very low, generally 0.002 to 0.003 milligramme, whereas blanks of 0.02 are common with the sulphide method.

#### The Method Employed for the Estimation of Lead in Blood.

The first method employed for the estimation of lead in blood proved unsatisfactory. The blood was evaporated in a silica dish on the water bath for about twenty-four hours, after which it was dried in an air oven for a further twenty-four hours and then ignited over a very low Bunsen flame for two or three days. This procedure was necessary to drive off the greater proportion of volatile combustible matter and to avoid loss by swelling over the sides of the dish on ignition in the muffle. After this treatment the remainder was ashed in the electric muffle at below 500° C. for several hours, the ash treated with concentrated hydrochloric acid and extracted with hot water, the residue dried, treated with a small quantity of nitric acid, dried and reignited and again extracted with concentrated hydrochloric acid. The two extracts were mixed and the solution rendered just acid to methyl orange. Sulphuretted hydrogen was passed through and the subsequent steps as described for urine carried out, the final estimation being done by the volumetric chromate iodide method. The relatively large amount of iron present, however, makes this method unsuitable. When the sulphuretted hydrogen is passed into the slightly acid solution, some iron is reduced and comes down as ferrous sulphide. The subsequent treatment does not remove it completely and the accuracy of the final titration with thiosulphate is interfered with.

After numerous experiments the following method was adopted and found to give accurate recovery of lead added to blood.

A sample of blood, two hundred to three hundred cubic centimetres (greater volumes are avoided because of the prolonged treatment necessary to ash completely) is evaporated to dryness in a silica dish, dried and ignited completely and the ash dissolved by boiling with concentrated hydrochloric acid. The solution is diluted to approximately one hundred cubic centimetres and rendered just acid to methyl orange after which sulphuretted hydrogen is passed to saturation. The precipitate is removed by centrifugation, washed, dissolved in concentrated hydrochloric acid, the solution adjusted to 0.02 normal acid and precipitation with sulphuretted hydrogen repeated. The precipitate is again dissolved and again precipitated from 0.02 normal hydrochloric acid, if necessary, for the complete removal of iron and once this is effected, the final stages of the estimation are carried out by any one of the methods described for urine, according to the amount of lead present.

## ACKNOWLEDGEMENTS.

In concluding this paper I wish to acknowledge my indebtedness to the staff of the Department of Veterinary Science of the University of Sydney for providing the animals used, making the injections and taking the samples of blood and urine, to Professor Priestley, of the Department of Physiology, and to Dr. H. G. Chapman, Director of the Cancer Research Committee, for advice and helpful criticism in connexion with this work.

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## AN OUTLINE OF THE SCHOOL MEDICAL WORK OF THE LONDON COUNTY COUNCIL.

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While acting on exchange with an officer of the London County Council, I was enabled to make the observations set out below in connexion with school medical work. These observations may be of interest to some readers of the journal.

The school medical staff of the London County Council consists of the Chief Medical Officer, the Chief School Medical Officer, divisional school medical officers and assistant school medical officers. These latter are either whole-time or part-time officers.

The whole of the area controlled by the London County Council is for the purpose of school medical examinations split up into five divisions, each in charge of a divisional medical officer. The number of assistant medical officers in each division varies according to area and population served. For instance, in the area with which I was associated, there were nineteen assistant medical officers.

The school nursing service of the London County Council is under the control of the Matron-in-Charge who is responsible for the organization of this branch of the service. She in turn is responsible to the Chief Medical Officer.

A time table is made out at the divisional head office for each assistant medical officer. This time table gives the names of schools and the times and dates on which they are to be visited for the whole of the ensuing term. At the first visit to any par-

ticular school the doctor has a consultation with the three head teachers (boys', girls' and infants' schools), the nurse and the care committee representative. At this consultation the doctor informs the teacher which groups of children he will see at the respective visits, so that parents may be notified and be in attendance when their children are examined. Under the regulations of the London County Council it is essential for the parent to be present when the child is examined. If the parents fail to attend after having been notified on two occasions, then the examination proceeds in their absence. This system applies more particularly to entrants and younger children.

The routine medical examination of the child takes place three times during its school life, as follows: Class 1 as entrants, Class 2 as eight-year-olds, Class 3 as leavers.

In Class I a child may be of any age from three to six years. A child is permitted to commence school at three years of age and in the poorer class of suburb is encouraged to do so. It is considered to be better for the physical well-being of the child that he should come to school rather than play in the public thoroughfares or be confined to his miserable surroundings which as often as not consist of one or perhaps two rooms, whereas at school there is ample playground space amid more healthy conditions.

For these small children the first few years of school life comprise only organized play and *Kindergarten* work. One particularly satisfactory feature in the school life of these infants is that they all have at least one hour's rest during the school day. Canvas stretchers are provided for the purpose.



FIGURE I.

School children enjoying a midday siesta in St. James's Park, London, where lessons are done in the open air. The children have rugs on because it is winter time.

Class 3 is composed of what are called "leavers," who are thirteen or almost fourteen years of age. These children are always examined a month or so before they are due to leave, in order to allow time for the remedying of defects before they leave the school.

Special care is given to the examination of these children and the school medical officer is required to give in writing on the medical card his opinion as to the fitness or unfitness of the children for any particular work. For example, a defective vision child would be recommended to refrain from close work. A tuberculous child or one with a family history of tuberculosis would be recommended to try to get outdoor work and so on. An after-care committee interests itself in obtaining positions for children who leave school, and also for any subsequent positions for a few years after they leave. This after-care committee is a subcommittee of a main care committee.

In the case of school children desiring to do remunerative work outside school hours, it is necessary for them to obtain a certificate from the school doctor. This certificate is given only when it is considered that such work will not be detrimental to the health of the child.

The actual medical examination of the child is much the same in London as in Australia. The school nurse precedes the doctor and prepares the pupil for the examination. The nurse weighs and measures the child, examines the hair, if necessary sending a report to the cleansing station, and tests the sight and hearing. On the day of the examination by the medical officer the child is undressed except for bloomers or trousers. Shoes and stockings are also removed. The examination then proceeds as usual. If the mother is present, she usually is, she is informed, should there be necessity to have any treatment, of the desirability of obtaining it and where it is available. This part of the work is considered by the London County Council to be of the utmost value because of the direct contact which is established between the doctor and parent.

In the room at the time of the examination besides the medical officer are (i) the nurse, (ii) the head teacher, (iii) the care committee worker, (iv) the parent and (v) the child. It can well be imagined that the room is not as quiet as could be desired.

The teacher organizes the examination, bringing forward the children as required. She is of great assistance in supplying information regarding the capacity of the child both mentally and physically and also in regard to its home conditions.

The care committee worker is a voluntary and so unpaid worker who interests herself in this form of social work and she may or may not be satisfactory. Her work is primarily to make the appointments for the children at the various centres or hospitals when the parent consents to treatment. When treatment is not obtained or when the parent is not present at the examination, it is the duty of the care committee worker to visit the parents and to persuade them to obtain the necessary advice for their children.

As can be readily understood, the results obtained depend largely upon the interest and efficiency of the care committee workers and as this work is purely voluntary, it is quite impossible to have any

definite control of it. Thus the thoroughness of the follow-up work varies very considerably.

The London County Council appears to be one of the last authorities in Great Britain still to use this voluntary social service. Most of the authorities utilize trained departmental officers for the purpose.

If parents persistently fail or refuse to obtain medical attention for their children, the medical officer can enforce treatment either by sending the "special officer," a much feared and respected member of the London County Council staff, or by referring the child to the National Society for the Prevention of Cruelty to Children. This society may take the matter to court and so compel treatment, but usually it succeeds without resort to legal proceedings.

If, as a result of his examination, the medical officer thinks a child appears to need extra nourishment, he has the power to order milk or cod liver oil for a defined period. This is then supplied to the child at the school by the teacher, either free or at wholesale rates, according to the means of the parents. In the case of indigent families, children can be supplied with hot dinners, if the medical officer certifies that this is necessary. These dinners are charged for at a nominal figure or are supplied free to the child, the money in the latter case being found by the care committee.

Medical attention for school children, in addition to that which is available at all the many hospitals in and around London, is provided by the London County Council. For this purpose school treatment centres have been established throughout London and Greater London. These centres are situated as centrally as possible to the schools which are to be served. One or more trained nurses are always in attendance. It is the duty of these nurses to attend to all the minor ailments of the school children. Otorrhoea, impetigo and similar affections constitute a great part of their daily work, as well as all the minor accidents of child warfare.

At these centres there are several rooms set apart for the use of the school dentist. According to the needs of the district the dentist may be present all day and every day or only part time. The parents are expected to contribute something towards the cost of dental treatment. The scale of charges is as follows: One shilling for one tooth or a minimum of two shillings which entitles a child to treatment for six months and for this amount the whole mouth can be attended to.

The actual cost to the London County Council for this service is seven shillings and sixpence per child, but the parents obtain it for the minimum rate of two shillings. Nobody seems to prefer to pay more than the minimum rate.

On certain days in the week specialists in various branches of medicine visit the centres where they carry out both examination and treatment of the eyes, nose and throat.

In addition to these school treatment centres there are artificial sunlight clinics and within the

last year great attention has been paid to special treatment for rheumatic children. To meet this need the London County Council has established rheumatic clinics in various areas. This work is still in its infancy, but even so, it is proving of very great value.

#### Cleansing Stations.

The cleansing stations are centres, also in charge of trained nurses, the purpose of which, as the name implies, is to clean the children. The service is most commonly required for pediculosis and scabies.

These conditions are found much less frequently than was formerly the case and in some cases the cleansing stations have been shut down and in practically all cases the nursing staffs have been decreased.

The nurses from these stations visit the schools in their area and examine the heads of the children. If any child is found to be infested, it is given a few days in which to be cleaned up and it is then reinspected. If still found to be infested, it is taken to the cleansing station. In the case of scabies the child goes straight to the cleansing station for treatment and is not permitted to return to school until the nurse certifies it to be free from infection.

Other special activities are provided in association with the School Medical Service.

#### Holiday Homes.

The holiday homes are scattered throughout England; some are managed by the London County Council and others by various religious and philanthropic bodies. To these homes the assistant school medical officers can send those children that are likely to benefit by a holiday. The London County Council has separate homes for boys and for girls. Homes are situated both in the country and at the

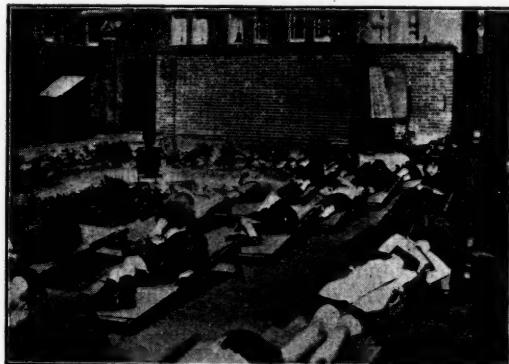


FIGURE II.

Rest-hour in open air class. Note the canvas stretchers. Each child folds up and stores away his own stretcher when the rest hour is over. This takes only three minutes to do.

seaside and children are sent to whichever it is considered would be most beneficial to them. They remain at the homes for periods varying from a month upwards, according to needs. The children are examined immediately before admission to see

that they are free from any infections and they are weighed and measured. Whilst in the homes belonging to the London County Council they have any dental defects which may be present, rectified. They do a certain amount of school work and are kept under proper supervision. The results obtained are excellent.

#### Open Air Classes.

Many of the schools in the London district have open air classes attached to them. Into these classes are put anaemic or delicate children and they are given milk or cod liver oil every day. In these classes one hour's rest per day is insisted upon. These children are weighed and measured every



FIGURE III.

Class in an "open air school." Note the uniform. Although this photograph was taken outside, usually the classes are held in open air pavilion class rooms.

month and a chart is kept of their progress. As soon as thought desirable, the children are returned to the ordinary classes and other children take their place. A child may be in this open air class for anything from three months to a year.

#### Open Air Schools.

The majority of the children seen in the open air schools are of pretuberculous type and remain there for two years.

Although the educational curriculum is virtually the same as at other schools, the hours of attendance differ. The school period commences earlier and ends later. This enables the children to have three meals at the school and to remain under salutary conditions for a longer period. In addition to breakfast and tea the children are supplied with a hot dinner in the middle of the day. They are given milk to drink and cod liver oil is administered, if thought necessary. It is compulsory to rest during the day for one hour. These children do all their work out of doors and yet are clothed only in cotton bloomers; the elder girls wear in addition a short cotton overall.

These open air schools are mixed and boys and girls are dressed alike. The children remain out of

doors all the year round and the only concession made in the winter is the addition to the clothing of a woollen cardigan. Whilst travelling to and from their homes they wear their ordinary clothing.



FIGURE IV.  
Children in an "open air class" in Tooting, London.

#### Schools for Physical Defectives.

As all the children at the schools for physical defectives are disabled, the work necessarily varies according to their disability.

#### Backward Schools.

To the schools for backward children go all the mentally retarded children. A certain amount of educational work is done, but it is directed mainly along the lines of manual activity.

#### Schools for the Deaf.

The schools for the deaf have been established for the completely deaf and also the partially deaf.

#### Schools for the Blind.

Schools for the blind are separate institutions under the London County Council, but in addition there are classes established at some of the bigger schools for myopic children. These are known as myope classes and to these classes are sent those children who are not completely blind, but have defective vision of such a nature that special care and tuition are necessary.

#### Classes for Stammerers.

A class is established at one of the larger schools in a district with a specially trained speech defect teacher in charge. Children needing treatment for this defect, are sent from other schools in the district.

Children attend these classes once or twice a week, according to their need, and for about one hour at a time.

#### Transport.

The problem of transport of the children to these special schools or centres is overcome in one of the following ways: By the supply of free tram tickets

to children able to travel by themselves; by motor vans, with trained nurses in charge, for the transport of the physically defective, mentally defective and myopic children; these vans call either at their homes or at a prearranged spot to which the parents have taken them. In special cases, for example young children suffering from stammering defects or those who are deaf, or in crowded and dangerous thoroughfares, children are collected at certain pre-arranged spots and conducted both to and from the school.

In conclusion I wish to point out that one could not help but note with satisfaction the efficiency of the whole organization and associated activities of the London County Council in regard to the school medical work. One felt that for every need that might arise, there was adequate provision and wonderful cooperation.

#### THE HOSPITAL ALMONER.

By AGNES MACINTYRE,  
*Almoner of the Melbourne Hospital.*

It is sometimes forgotten that the condition which brings the patient to ask for hospital treatment is lack of means to pay for private medical attendance. The question as to how this state of affairs has come about in the patient's life is one for examination. It may be the result of misfortune of various kinds, unemployment or long continued sickness. Or, on the other hand, it may have resulted from thriftlessness or a reckless way of living. But the fact remains that the applicant for hospital treatment has not the means to pay the private practitioner or the consultant, as the case may be.

The physicians and nurses giving all their skill and care to the task of endeavouring to restore the sick person to his place as an active independent member of society are faced with this underlying difficulty. To make the treatment at hospital quite effective, knowledge of the patient's home conditions, his mode of life and his outlook is needed to supplement and complete the information gained by the doctor in his examination. This knowledge, so essential to the out-patient physician or surgeon, can be supplied by the cooperation of an almoner's department and an assurance given that every reasonable effort will be made to disentangle complicated situations and make readjustments at home when needed.

The almoner's place is inside the hospital, but her activities reach beyond it to the patient's home and family. The patients come to the hospital to seek a cure for their ailments; but the conditions of their lives, their responsibilities or their temperaments may be placing impediments in the way, so that instructions given by the doctors cannot or will not be carried out. It is the almoner's duty to try with the cooperation of the patient and his family to remedy or remove such environmental

difficulties, so that he may benefit as fully as possible by the treatment he is undergoing. It may be contended that with the present day high standard of hospital organization and equipment and the manifold health and educational services which the public authorities place at the disposal of the community, in conjunction with the numerous organizations which exist purposely to assist the sick poor, there seems little need for the establishment of yet another branch of hospital administration. But a brief study of the problem of how to make it possible to insure that each hospital patient shall benefit fully from the advice and treatment will perhaps reveal in what way the services of a competent almoner can be of use to the patient, the physician or surgeon, the governing board of the hospital and the charities and social services which operate outside the hospital.

In England the lack of this particular branch of hospital service was first brought before the notice of the public during the sittings of a select committee of the House of Lords appointed to inquire into the management of the metropolitan hospitals. The committee sat from 1890 to 1893 and Mr. (later Sir Charles) Loch gave evidence. His experience, first as Secretary to the Royal College of Surgeons, then as Secretary to the Charity Organization Society, had led him to spend long periods observing the out-patient departments of various London hospitals. He noted that many persons attending were evidently in need of help other than medical. Although this fact was doubtless quite apparent to both doctors and nurses and in individual cases of outstanding need someone might try to secure the provision of the necessary assistance, there was no one whose business it actually was to take this matter in hand. To those familiar with hospital conditions who know what concentrated attention to their particular duties is required from medical and nursing staff, it must be evident that any attempt to deal thoroughly with such cases could be only intermittent and unsatisfactory. What was evidently needed was a trained responsible worker, familiar with the lives and surroundings and difficulties of the poor and with the best available methods of relieving distress and at the same time instructed in the traditions of the medical profession and the functions of hospitals of various types. In 1895 the first almoner's department was established at a London hospital. Since that time many others have been gradually appointed in London and in other cities and the demand for their services is steadily growing. Many more facilities now exist, provided both by public authorities and private charities to help towards the betterment of the health and home conditions of the people, but more coordination is needed. This is very evident to any one working in the capacity of a hospital almoner. As the standard of hygiene and public health has risen, so has the demand increased for more carefully detailed work on her part. For instance, of late years modern methods of treating persons suffering from diabetes and gastric affections entail

long continued, patient supervision and encouragement to obtain successful results. This is more particularly the case when the patient is in poor circumstances and is inclined to give up the long struggle against daily difficulties.

The hospital patient is conscious of the pressure under which most, if not all servants of the hospital have to work. The visiting physician or surgeon is not only diagnosing and treating his patient; he is teaching his students. The house physicians and surgeons are necessarily very much absorbed in the scientific side of their job. The nurses have their own exacting specific duties. A timid or considerate patient hesitates to absorb for any length of time the attention of those so fully engaged. It is a relief to him to find that there is someone who, although no doubt also exceedingly busy, is there for the particular purpose of attending to his difficulties and, if possible, removing the obstacles, material or otherwise, which will interfere with his course of treatment and recovery. The almoner should have time to give the patient a quiet interview and should be at this interview in possession of information as to his complaint. She is thus in a position to know (roughly in some cases, more exactly in others) how to plan assistance for him. Naturally, it often happens that two or three minutes' conversation will reveal that no aid is required. The illness is trifling, the patient competent to carry out the treatment prescribed; he has adequate means and suitable home surroundings. That patient may be dismissed with a friendly invitation to call should any unforeseen difficulty arise. But in a number of other instances the illness will be serious and, even if some of the other necessary adjuncts to recovery are available, it is obvious that careful watching and possible help and guidance will be required before much time has passed. The almoner keeps in touch with patients of this kind and acts or is ready to act when the need arises. When she has to call upon an outside society to assist a family, she always makes it quite clear why and under what conditions help will be forthcoming. Intelligent cooperation on the part of the patient is essential to the making of plans. It is because it is so important not to overlook the needs of the patient who is too diffident to bother the busy doctor or nurse, that it appears to be more in the interest of hospital administration as a whole for the almoner to interview each new patient. The almoner must give the patient the impression that his interview with her is unhurried. He must feel that she has time to listen to his difficulties. Judgement and common sense must guide her in the questions she asks, which should never be stereotyped. The essential information required can often be obtained by gradual stages through varied methods of approach.

To the physician and surgeon the almoner brings an assurance that his recommendations will be carried out, as far as any possible means or contrivance can do so; but just as there are diseases which doctors cannot cure, there are circumstances

which baffle the almoner. With the machinery she can put into motion the doctor can be assured that his most interesting patients will not drift away. Long experience has shown that home visiting has been found to have a good effect in insuring steady attendance. Without detailed after care some patients inevitably disappear. This must be an unsatisfactory state of affairs from a medical point of view and it is certainly so from the social aspect.

The doctor in private practice knows his patient's family and surroundings. He uses this knowledge to assist him in arranging treatment. The hospital physician cannot acquire this information at first hand, but he can count upon obtaining it through the almoner and thus may light be thrown upon contributory causes of disease. Medical men in England have on several occasions spoken and written in favour of the establishment of almoners in all hospitals. About two years ago Lord Moynihan, President of the Royal College of Surgeons, said, in reference to the taking over of the very numerous poor law hospitals in England by the councils or other public authorities:

I think the Government might give us a lead in this matter and might make us all realize that which in my judgement is true, that unless every hospital in future has as a recognized member of its staff an almoner or even two or three or four or more, the work which is being done in that hospital is not having its full effect and there is in all probability a very heavy waste of money. I have been more than ever surprised during the last few years with the benefits which result from the collaboration of almoners with our work. . . . I desire most emphatically to say that the work of an almoner is, in my judgement, absolutely essential to the welfare of patients and that it must in future be considered a discredit to any hospital which does not make use of almoners in its service.

The advantage of the help given by an almoner's department is perhaps more readily appreciated by the medical and nursing staff than by the administrative side and governing board. This is probably because the doctors and nurses are daily in contact with the problem of the ill-nourished child, the over-worked mother or the anxious father stricken down by serious illness. The members of the board are not unheedful of the difficulties which enter into the lives of many of the applicants for hospital relief, but they have not always the needy before their eyes and financial problems are often of such magnitude that to launch out into fresh expenditure seems impossible. The majority of hospitals are in dire need of funds and a hospital committee may hesitate before deciding to establish a department which at first sight may appear expensive; but if members of governing boards consider Lord Moynihan's words in reference to waste, in all their implications, waste of effort no less than waste of money, they will probably decide that the extra cost will mean a saving on balance.

Mention has already been made of the necessity for getting the patient and his relatives to understand clearly what is involved when an application either by himself or by the almoner on his behalf is made to any charitable or State fund. For this

reason among others it is important that the almoner should be familiar from her own practical experience with as many of the societies and State departments concerned as possible. This experience should be obtained during her training and for smooth and efficient working she should keep in touch and foster terms of friendship with all responsible workers in these societies. The almoner is essentially a link between the hospital and the patient's home. She is the first link, but the second may be a visitor or a worker from some interested charity. This individual will become the patient's friend and adviser at home, so a comfortable understanding between the almoner and the visitor helps the patient and promotes the work of the hospital in every way. It is also important that the almoner should be acquainted with the staffs of such government departments as touch upon health and social conditions. During her training she will have made herself familiar with the powers of ministries and local authorities in the State in which she is living. She must be in a position to use her knowledge quickly and accurately. Hospital work tends to become more and more coordinated with public health activities. The almoner will, therefore, be wise to follow very carefully all changes in legislation which affect the health and general welfare of the poorer sections of the community. The after care of every patient is her charge; hence her plans must vary to suit each situation as it arises. The healthy young person recovering from an operation will need only convalescent treatment, but the child attacked by a crippling disease must, if possible, be started in some trade or light occupation when sufficiently well and the unmarried girl attending the venereal diseases or maternity clinic may need to be helped to make a completely new start in life. Plans for some are quickly and easily made, while for others much time, patience and ingenuity are required before any hope of results can be entertained.

The Australian enjoys perhaps the most favourable working and living conditions in the world. But in spite of these advantages the city hospitals are crowded and the out-patient departments have an enormous daily attendance and the charitable societies find it difficult to cope with the applications they receive. Sometimes the distress is due to the expenses incurred during long continued sickness; the savings of even the thriftest worker may thus be depleted. Sometimes health is undermined by periods of unemployment, when lack of necessities affects the body and worry and anxiety prey upon the mind. But even at times less difficult than the present there is evidently much scope for the hospital social worker. Human nature is the same the world over. Even in the United States of America where certainly equally good opportunities exist for all classes, the hospitals find that a social service department is essential for complete and efficient administration.

The almoner has been called the lay friend and adviser of the patient. When a small income has

to provide for a large family, she may need to advise on the wisest and most economical way of buying and preparing suitable food. Rents in town are often disproportionately high, making it difficult to balance the household budget. She must be ready to give information and guidance about the supply of surgical appliances, spectacles and artificial teeth and to make sure that the patient appreciates the use and value of what has been ordered for him. She must see that he contributes towards the cost to the extent of his ability. By arranging for home supervision in cases where it seems doubtful that the patient is honestly trying to follow his treatment, she can eliminate waste of medicine and dressings. She is alive to the fact that certain patients are inclined to take for granted all the thought and care expended upon them by doctors and nurses. By her own attitude she can help to make it clear than when at all possible the fullest return should be made for the services so willingly rendered. The helpless dependent person is encouraged to cooperate in thinking out plans for himself.

In seeking the best interests of the patient and endeavouring to give or obtain assistance or guidance for him as wisely as may be, a long view must be taken. Although from the very nature of the work emergencies which may call for a small expenditure, may constantly arise and immediate relief may be sometimes necessary, it should not be lost sight of that ill-considered charity may do more harm than good.

In Australian cities there is evidently a movement in the direction of a more complete degree of cooperation between the various societies giving relief. It seems probable that when this concurrence is effected, it will be possible to get more comprehensive help in certain circumstances which present difficulty at the moment. Unfortunately, there are persons who make a practice of using hospitals and other charities for their own ends. Careful inquiry and complete coordination between the charities giving any form of succour and the hospital almoners would, besides making the remedy more adequate, have the effect of reducing abuse, duplication and waste.

It is evident that the hospital almoner assumes great responsibility. Her task should, therefore, not be undertaken lightly. But provided that her natural qualities render her suitable for such a position and she has undergone the necessary, somewhat arduous training, a sphere of great usefulness lies before her. Pride in the standing and success of the hospital she serves is a stimulus to the almoner and the fact that the hospital depends upon its social service department to perform a definite piece of work closely linked up with all the other activities, medical, nursing and administrative, is not the least of her rewards.

#### OLLA-PODRIDA.<sup>1</sup>

By W. J. L. DUNCAN, M.B., B.S. (Melbourne), D.O.M.S.,  
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#### Quackery and Ophthalmology.

NEED I remind you that every rose has its thorns, in every garden weeds spring up and thrive? There have always been and doubtless always will be hypocrites in religion, shysters in law and quacks in medicine. Mankind is easily duped and the pretenders of medicine, including ophthalmology, have thrived on the credulity of the public. You may have heard the story, but since it serves my purpose, I shall "stale it a little more." A noted quack was once visited by a regular physician who, after viewing the palatial chambers with all their evidence of wealth and prosperity, ventured to ask: "How is it that while I study and work all day and often far into the night and thereby gain merely a meagre living for myself and family, you work only four hours a day and yet live in luxury without a care or worry?" Whereupon the quack led him to the window and pointing down to the surging crowd beneath said: "How many of these people do you think are possessed of good hard common sense?" To which the doctor replied: "Oh, about one in a thousand." "Well," said the quack, "you get that one and I get all the rest."

Quacks were and are often imposing individuals who assume a gravity and appearance of omniscience in order to camouflage the minuteness of their knowledge. According to Skeat, the word quack originally meant a mountebank who sold salves and eye lotions at country fairs.

The quack eye doctors attained their practice largely by advertising in quaintly worded bills; but their practice in many cases was not confined to ophthalmology.

One, Tilbourn, in the reign of Charles II, stated: I perform all manual operations, as the stone in the bladder or kidneys, by cutting or by particular medicines. I recover and give sight to the blind. I restore sight in a moment. I cure deafness (if curable). I cure vomiting, rising of the vapours, pain in the milt, stitches in the side and all scorbutic distempers. I can, if any person do by accident or misfortune lose one of his eyes, artificially put in another, not to be discerned as a blemish by any person.

A German doctor of the seventeenth century who had settled in London, advertised that he could recover and give sight to the blind in a moment, cure hairlips in six days and the cancer in the breast or any other part of the body.

One other's bill reads that he can also take away all webs, pearls, spots, sparks, clouds and films from the eyes and coucheth cataracts if occasion be.

A celebrated high German doctor who settled in the Strand between St. Clement's Church and Temple Bar, had an elaborate advertisement by which he wished it to be known that he is as expert an oculist as he is excellent in curing the stone and rupture that like of him is scarce to be found.

<sup>1</sup> The first part was published in THE MEDICAL JOURNAL OF AUSTRALIA, November 9, 1929, page 745.

He has cured those who were born blind (by cataract) and restores their sight in less than a quarter of an hour.

The famous Dr. Abraham Souburg who came to London from Groningen, announced that

he doth cure many grievous distempers in the eyes by manual operation with a needle of gold, silver, or steel. Even those who are blind by a cataract, be they men, women, or children, he hath cured by God's assistance and brought them to their sight with speed and without pain or smart, who could not distinguish by reason of their blindness, fire from water nor the sky from the earth: for there is no person in all the United Netherlands, nor in this famous city, who can operate with a gold, silver or steel needle as he. He hath cured 184, both young and old, of blindness by the help of the needle only, there being 313 distempers incident to the eye.

Another notorious quack was George Fairclough, who had at one time been blind himself. According to his bill

he hath given such eminent proofs of curing all sorts of eyes of late in London, and now hath done such a wonderful cure at The Bath upon a person, by one breaking into his house at night, striking him down with a piece of iron, battered and flattened his face, placed his thumbs in the corner of both his eyes and by violence forced them out. In this barbarous manner he was brought to me, as dead as a sheep's eye out of its head; yet with God's assistance I replaced his eyes and restored him to perfect sight again. This being notoriously known to the whole city and all gentlemen and ladies here.

I have previously mentioned Sir William Reade, Queen Anne's oculist, for his intriguing views concerning the causation of squint. The Queen had almost a passion for quack oculists, seeking relief for the weak eyes which troubled her all her life. Reade began life as a tailor, forsook tailoring for quackery, was knighted by Queen Anne and became one of the wealthiest practitioners of his day. He was a most laborious advertiser and though there was a current epigram that Reade could hardly read, scarcely any publication appeared without some testimony from his own hand. With the natural effrontery of a quack, Reade published a book on diseases of the eye entitled "A Short and Exact Account of all the Diseases incident to the Eyes"; to any person of understanding it merely further attested to the colossal ignorance of the author. On the occasion of his knighthood, he hired an impecunious poet to announce the fact to posterity and "the town." The efforts of this poet gave birth to the publication in 1705 of "The Oculist, a Poem," a copy of which is still preserved in the British Museum.

Another of Queen Anne's quack oculists was Roger Grant. He began life as a tinker and anabaptist preacher. The charge of being a tinker was not infrequently thrown up against him. In the words of an old song:

Her Majesty was in a surprise,  
Or else was very short-sighted;  
When a tinker was sworn to look after her eyes  
And the mountebank Reade was knighted.

Grant's method was to publish circumstantial and minute accounts of his cases. He would get hold of "some indigent and obscure person of imperfect vision and, after treating him with medicines and half-crowns for six weeks, induce him to sign a

testimonial to the effect that he had been born stone-blind and had never enjoyed any visual power whatsoever, till Providence led him to good Dr. Grant, who had cured him in a little more than a month. This certificate the clergyman and the churchwardens of the parish were asked to attest."

Portion of his bill read that

he had for many years made the eye of man the only subject of his study and practice and you are desired to forbear your application to him on other occasions, for he meddles in nothing but what relates to the eyes.

Another quack oculist who achieved considerable fame about this period was John Taylor who styled himself the Chevalier Taylor, ophthalmiator, Pontifical, Imperial and Royal (he claimed to having attended a Pope, an emperor and a member of the Royal family). Taylor had a little knowledge of his subject, but was a cunning, plausible, shameless charlatan with considerable ability. He had a good person, had travelled all over Europe, was a natural orator and a linguist of no mean calibre. He made a practice of travelling from town to town and wherever he tarried, he would give lectures on the eye, lectures which consisted not of an exposition of the anatomy and physiology of the eye, but rather of absurd rhapsodies full of grandiloquent phrases. He had to a marked degree that wonderful faculty, supposed to be the prerogative of politicians and diplomats, of talking entertainingly on any subject and leaving you at the end not one fact the wiser.

Taylor's oration to the University of Oxford began thus:

The eye, most illustrious sons of the Muses, most learned Oxonians whose fame I have heard celebrated in all parts of the globe, the eye, that most amazing, that stupendous, that comprehending, that incomprehensible, that miraculous organ the eye, is the proteus of the passions, the herald of the mind, the interpreter of the heart and the window of the soul. The eye has dominion over all things. The world was made for the eye and the eye for the world. . . . The eye is indefatigable. The eye is an angelic faculty. The eye in this respect is a female. The eye is never tired of seeing; that is of taking in, assimilating and enjoying all nature's vigour.

The Chevalier once had the temerity to challenge Dr. Johnson to converse in Latin with him. "He said a few words well enough," Johnson said magnanimously when he told of it to Boswell. "Taylor," said the Doctor, "is the most ignorant man I know, but sprightly."

These impostors were never students of logic; just as one man professed to cure ruptured children, because his father and grandfather were born bursten, so an oculist of Sir Richard Steele's acquaintance claimed to cure cataracts because he had lost an eye in the Emperor's service.

Please do not misapprehend me; the men to whom I have referred were not medical men; they were quacks pure and simple. I should feel very aggrieved if any misconception should arise, as I yield to none in admiration of the men of my own profession. Yet one must remember that in the past even some medical men of note have been guilty of keeping secret some remedy of their own

composition and profiting by its sale. It is said that so eminent a physician as Sir Hans Sloane sold an eye salve.

#### Empiricism.

Various empirical remedies have been found later by scientific proof to be in very essence valuable remedies. One must draw a difference between an empiric and a quack. An empiric was not necessarily a quack, but more properly an experimenter, one who gains his knowledge by experience and observation. Digitalis was an empirical remedy long before Dr. Withering published his observations on its use. In 1775 he was told of a cure for the dropsy, kept secret by an old woman in Shropshire, who had frequently achieved a cure after the failure of regular practitioners.

Centuries ago yellow oxide of mercury ointment was an empirical remedy for the eyes. "Singleton's Golden Eye Ointment" begins its history somewhere about 1700. It has had probably the longest success of all patent medicines or salves. Today it belongs to a Mr. Green, who inherited it from his grandmother, Selina Folgham, who inherited it in her turn from her mother, who was a granddaughter of the original inventor, Thomas Singleton.

Similarly modern medicine has borrowed the treatment of functional night blindness. During the long and severe winter of Newfoundland dried vegetables, salt pork and margarine were necessarily the mainstay of diet available to the inhabitants; with the passing of winter and the appearance of spring many of them suffered from night blindness. By some fair chance or experiment they discovered that the liver of birds was beneficial for their complaint and they adopted bird's liver, raw or cooked, as their remedy. Again has an empirical remedy been justified, for the liver treatment of functional night-blindness has been confirmed by scientific investigators. An historical survey of this visual disorder and its remedy affords an interesting example of the ultimate discovery of their scientific basis, after the intermittent use for twenty-five centuries of the same empirical antidote. Hippocrates described night-blindness and observed that it was sometimes associated with scorbutic signs. His treatment consisted of purging, cupping and the injection of ox's liver steeped in honey. Others preferred the liver of the goat or the sheep. Modern observers are agreed that night-blindness is a frequent concomitant of scurvy. So we see the rationale of the Hippocratic treatment. The fresh liver would benefit the general scorbutic condition and in that way hasten the cure of the visual ailment.

The same method of treatment was known not only to the Greeks, but also to the Roman and Arabian physicians. Galen, Celsus and Pliny mention and recommend it; Rhazes and Avicenna also speak favourably of it.

Some knowledge of this treatment probably survived through the centuries, although it seems as if the laity in various countries and at different times have rediscovered it for themselves. A liver

diet has for generations been a popular remedy for night-blindness in eastern countries. Among the inhabitants of Newfoundland it is the traditional remedy for the disorder.

It is interesting to note that in the general diseases of which night-blindness is occasionally a concomitant, cirrhosis of the liver, scurvy, malaria, chronic alcoholism and the toxæmia of pregnancy, there is invariably liver damage.

It is also associated with xerosis of the conjunctiva and is the earliest warning of keratomalacia. By experiments on rats night-blindness has been proved to be due to a deficiency of vitamin A. Growing rats on a diet devoid of that constituent develop conjunctival xerosis and later keratomalacia.

"I miss my vitamin A, my dears,"  
The rat was heard to say.  
"And you'll find your eyes will keratinize  
If you miss your vitamin A."

The people of Newfoundland, in addition to bird's liver, have sometimes used rabbit's liver, cod's liver and cod liver oil, all of which substances are rich in vitamin A.

There is one other factor in its aetiology, exposure to strong light. Hippocrates and Celsus both noted the immunity of women from night-blindness. This they ascribed to the catamenia. Those in whom the menstrual discharges were regular, they considered, were not subject to this visual disorder. In Newfoundland the people also noticed that it was the men who suffered. The facts that there the disease is confined to men who lead a life more exposed particularly to the reflected light from the sea and that it occurs in summer, indicate the importance of strong sunlight.

Long ago, night-blind sailors adopted the device of covering one eye with a dark shade during the daytime, so that at night the shaded eye would be serviceable. And several men have described the treatment of confining the victims to a dark room during the day.

Thus we are given a clue to the pathology of the condition which is a failure or tardiness in the reformation of the visual purple or rhodopsin. It is as if were a prolongation of the normal temporary blindness on passing from bright sunlight into a darkened room. Exposure to bright light causes a bleaching of the visual purple; in the dark it regenerates itself. Vitamin A starved rats manifest a tardy regeneration of the rhodopsin after exposure to strong light, a very much slower revival than in controls.

Thus we have arrived at the scientifically proven modern treatment of functional night-blindness, which consists in protecting the eyes from glare by coloured glasses and the administration of some 170 to 225 grammes of liver twice daily, followed by a course of cod liver oil and ferruginous tonics. A few days are sufficient to effect a cure.

## Reviews.

## FRACTURES.

WE find ourselves in a difficulty in regard to Dr. Böhler's book on fractures.<sup>1</sup> What that difficulty is will appear as we discuss it. First of all, it is the most interesting and original book on fractures that we have read. It is full of challenges to custom. Dr. Böhler is not one of those people who go with the crowd and ask no questions. On the contrary, he has hewn his own path, he has thought out every problem for himself and worked out his own technique. Tradition is nothing to him. Indeed, it can be said that he pays rather scanty respect to other people's experience. We greatly admire his independence, but we cannot recommend all his methods. We think some of his advice is very bad advice. But, on the other hand, he has a message. He hits hard and justly against some current methods. He presents new ideas and often much better ideas than the common stuff of text books. He is always completely confident that he has the only true solution of every problem. He has a cure for each difficulty, but it is only a difficulty to others, because it would seem that he never fails. The results he gets are 100% good. He does not actually say this bluntly on every page, but he never mentions a failure. We believe, without any difficulty, that he gets a very high standard of efficiency in his results, but we think he looks at his work through rose-tinted spectacles. In this he resembles the generality of surgeons and especially of surgeons who write about their results. Physicians are different. Physicians publish *post mortem* appearances. Some of Dr. Böhler's claims are sufficiently startling. For instance, although we know that in fractures of the carpal navicular bone the proximal fragment is cut off from its blood supply and that other surgeons find osseous union a rare occurrence, Dr. Böhler writes (page 13): "In sixty cases of recent fractures we have always obtained a bony union with no bony atrophy after complete immobilization by means of the non-padded dorsal plaster of Paris splint which remained on for six weeks. A most interesting fact is that we obtained good results also in the old cases which came to us with cavity formations in the scaphoid and atrophy of the other carpal bones. We immobilized the carpal bones for four to six months and we observed the disappearance of the bone atrophy and of the cavity formation and the complete bony union of the fracture." As to this, we retain much scepticism, but we are open to conversion. We should like to spend some time at Dr. Böhler's clinic and see for ourselves. We believe we would learn a great deal. Nevertheless, we doubt very much whether he would convert us to certain of his methods. In particular, we cannot see ourselves converted to his treatment of compound fractures and we must say that his advice will strike those who have had large personal experience as most dangerous. He recommends the closure of practically all compound fractures. This is one of the reasons why we cannot recommend his book for general use.

Dr. Böhler is most emphatic and unqualified in his condemnation of the now common open operations on fractures. He states on page 51 that: "The most disastrous innovation in the treatment of fractures is the operative reduction of the latter and the fixation of the fragments by the use of large metallic foreign bodies. . . Osteomyelitis and pseudarthrosis are constantly seen as the result of this treatment." Then on page 52 he states: "The most dangerous operation, however, is the open reduction and approximation of the fragments in compound fractures and yet many surgeons teach that exactly these fractures should be treated by approximating and suturing the fragments by the use of all sorts of foreign bodies." We thoroughly agree with Dr. Böhler in his condemnation of these methods and we think as he

does about plating. But if he condemns these methods largely because of the frequency of sepsis, we cannot understand how he manages to have practically all his compound fractures free from it, fractures in which the wounds have been made by all sorts of means and without any of the precautions taken by men who operate on a closed fracture. We are certain that the routine closing of all compound fractures is a most dreadfully dangerous practice, no matter what Dr. Böhler may say.

Dr. Böhler condemns the early use of massage and passive movements. He is quite unmoved by the fact that at present it is in fashion. Most men do things just because others do it. Dr. Böhler does not. He states categorically: "I consider massage and passive movements in all recent injuries and diseases as most harmful."

In the reduction of fractures, he uses local anaesthesia exclusively and appears to find it very satisfactory. We should like to give this a good trial, using his technique.

He makes very free use of plaster of Paris, applied without any padding. He does not remove the hair when he puts on an unpadded plaster, nor does he vaseline the surface. We would not like to be the patient when one of these splints, well bound to the hair, has to be removed. There are many good points in unpadded plaster, but there are also risks. Dr. Böhler takes risks that we would not recommend an inexperienced practitioner to take.

In fractures of the leg, he gets the patient up and walking in a plaster of Paris splint in a few days, the heel of the plaster being reinforced by a steel appliance to take the weight. His treatment for that great bugbear, comminuted fracture of the calcaneus, is the most promising technique that we have ever seen advised. The great majority of patients are permanently disabled by this most serious injury, no matter what hospital they have been in. Dr. Böhler's ideas can be carried out without the identical apparatus. The principle is right. The book was worth publishing, if for that alone.

## A POPULAR BOOK ON BACTERIOLOGY.

THE relationship of microorganisms to man's welfare is fascinatingly told in simple language by Dr. Park and Dr. Williams in a recent publication entitled "Who's Who Among the Microbes."<sup>1</sup> The story is divided into twenty chapters and is most ably developed. The first five chapters are devoted to a description of how microorganisms came to be discovered, how they came to be better known, how they live and act, how Nature reacts to them and how we have attempted to classify them. Then follow chapters dealing with special families and interesting details of the chief members of these families. Further chapters are devoted to yeasts and moulds, protozoa and filterable viruses and the last chapter is a summary indicating how man makes use of his knowledge of microbes to protect himself. Throughout, public health aspects receive the greatest attention, but non-pathogenic bacteria are also dealt with and it is shown how important they are in the economy of Nature. Many interesting historical details are given. The book is well illustrated with photographs of workers engaged in various bacteriological manipulations and microphotographs of microorganisms. There is also a useful index.

Although the subject is written in popular language, medical practitioners and students will find the book full of useful information treated in an entertaining manner. The work is authoritative and there is only one statement in the book with which we do not entirely agree, and that is that there is no satisfactory curative treatment for leprosy. The book can be highly recommended to all those interested in public health and microbiology.

<sup>1</sup> "The Treatment of Fractures," by Lorenz Böhler, M.D.; Authorized English Translation by M. E. Steinberg, M.S., M.D.; 1929. Vienna: Wilhelm Maudrich. Crown 4to., pp. 193, with illustrations. Price: \$5.00 net.

<sup>1</sup> "Who's Who Among the Microbes," by William H. Park, M.D., and Anna W. Williams, M.D.; 1929. New York: The Century Company; Sydney: Angus and Robertson, Limited. Post 8vo., pp. 315, with illustrations. Price: 12s. 6d. net.

# The Medical Journal of Australia

SATURDAY, FEBRUARY 8, 1930.

## A Retrospect.

### Orthopaedic Surgery.

WHILE no new or revolutionary advance has been registered in orthopaedic surgery last year, a great deal of sound work has been accomplished and considerable progress has been achieved. The general tendency seems to be toward the adoption of conservative measures based on well founded pathological observations. The orthopaedic surgeon is unwilling to relinquish several diseases which were formerly regarded as surgical on account of the usual practice of treatment by operative means, but which are now being controlled by medical means.

The prophylactic and preparalytic management of poliomyelitis has been discussed in another chapter. In the treatment of established deformities tendon transplantation is being used either in preference or in addition to arthrodesis. The results are said to be much improved.

Bone and joint tuberculosis continues to occupy the attention of orthopaedic surgeons. There has been a reversion to more conservative treatment in children, while operative measures are still employed for adults.

For acute osteoarthritis Dean Lewis advocates simple drainage without periosteal stripping and a minimal amount of disturbance. Others also favour the avoidance of additional trauma. The attack is made on the infection. In the subacute and chronic forms the limb is fixed in plaster and trauma is prevented by infrequent dressings, according to the method of Winnett Orr. Experience of this method has now justified its adoption. Much work has been carried out on the pathology and pathogenesis of arthritis in its manifold forms. A highly significant discussion has taken place in Sydney during the year on the place of focal infections in the aetiology of arthritis and on the

application of the principle of the pathogen-selective organism in its treatment. The orthopaedic aspect was handled by R. V. Graham. Many others have also studied this condition. It appears that the outlook is improving as a result of the investigations into the underlying causes. Pemberton has brought forward some suggestive evidence in connexion with carbohydrate metabolism which is indicating the direction of further accumulation of knowledge of the pathological processes involved.

Perthes's disease is also being attacked from an experimental point of view. R. Whitman regards the condition as a primary necrosis of the epiphysis with replacement of the dead bone by fibrous tissue. A. P. Zermansky and R. K. Lippmann have produced a condition very similar to Perthes's disease by division of the *ligamentum teres* in young rabbits. R. V. Graham has obtained the same results from division of the ligament in young goats.

Putti claims that he is able to diagnose congenital dislocation of the hip joint at a much earlier age than formerly as a result of the close study of the skiagrams of the hips of many children before actual dislocation has taken place. The American orthopaedic surgeons are resorting more to open operation for the reduction of these dislocations than do surgeons in other parts of the world. They claim that the trauma inflicted on the elements of the joint during non-operative attempts at reduction contributes to the appearance of arthritis in later life.

Open reduction of fractures is being used less frequently than in the past. The majority of surgeons are realizing that this method is rarely essential and that the necessity to employ metal plates for fixing the fragments is still rarer. Fay Maclure and G. A. C. Douglas dealt with compound fractures of the lower limb at the Australasian Medical Congress (British Medical Association), Sydney, 1929, and their papers provoked a very useful discussion.

The care of cripples has attracted a great deal of attention during the past few years. The subject has been handled by the Health Organization of the League of Nations and an international movement is already in existence. In Australia various efforts

have been made in Victoria on a small scale. Recently the Rotary Club in New South Wales carried out an experiment in Sydney with the aid of the medical profession. A survey of all cripples was undertaken and efforts were directed toward the orthopaedic treatment and vocational training of crippled children. A society has been formed as a result of this initial demonstration and it is proposed to take steps to apply orthopaedic measures to crippled children in all parts of the State to restore to them the maximum freedom of movement and to combat their ultimate industrial disabilities. It is probable that similar movements will be started in other parts of the Commonwealth.

Adson Brown has demonstrated that in Raynaud's disease and other vascular diseases of the extremities ramisection is followed by dilatation of the cutaneous vessels which persist for three years or longer. The actual aetiology of these conditions has still to be investigated.

#### Dermatology.

The year 1929 has been somewhat disappointing as far as the progress of knowledge in dermatology is concerned. The mass of literature has not decreased, but relatively few of the contributions contain new matter. The subject of allergy has been discussed by dermatologists. W. T. Sack has come to the conclusion that eczema, urticaria, prurigo and neurodermatitis are to a great extent psychic affections and are traceable to disturbances of the autonomic nervous system and the ductless glands. He claims that these and other skin diseases can be cured by psychotherapy in association with glandular extracts, such as the extract of the suprarenal body. At the third session of the Australasian Medical Congress (British Medical Association), Sydney, 1929, E. H. Molesworth sought to define the essential differences of true anaphylaxis and allergy and adduced evidence in favour of an allergic origin of eczema, purpura, urticaria as well as asthma and hay fever. He objected to the term angio-neurotic oedema as being misleading. In his view anaphylaxis, allergy and idiosyncrasy are allied conditions. Others also sought to extend the limits of allergic phenomena.

The suggestion that *alopecia areata* is a tropho-neurosis has been challenged on the ground that section of the sensory and sympathetic nerve supply to the scalp does not lead to baldness. C. S. Wright has endeavoured to explain the condition as a result of an irritative stimulation of the cervical sympathetic nerves, causing a regional vasoconstriction. The evidence, however, is not conclusive. Various forms of treatment of baldness have been advocated. None of them is new.

H. C. L. Lindsay has found that leucoderma is commonly induced by fungus infections, syphilis, leprosy and certain scaly eruptions, such as psoriasis. The sun's rays may also alter the photosensitivity of the skin. It is held that the double thiosulphate of gold and sodium reduces this excessive photosensitivity.

The empirical treatment of eczema by eliminating salt from the diet led N. Burgess to examine the chloride metabolism of patients suffering from eczema. The tests were controlled by estimations of the chloride contents of the blood of normal persons. He found that there is no abnormality of the chloride metabolism. He therefore maintains that there is no indication for the reduction of salt in the diet of persons suffering from eczema.

The use of gold-sodium thiosulphate in *lupus erythematosus* and in a variety of other conditions has become more general during the year. Some clinicians, notably Jadassohn and Matrinsen, have witnessed toxic effects of this drug and counsel caution in its use. On the other hand, it is claimed by many dermatologists that it alone of the known therapeutic agents is capable of effecting a complete cure of *lupus erythematosus*.

The employment of *Grenzstrahlen* in the treatment of a number of infective skin diseases has gained many adherents in recent months.

#### Bacteriology and Immunology.

A few years ago the chief aim of the bacteriologist was to discover and identify bacteria and protozoa and to determine their relationship, if any, to disease. The search for new varieties has gradually given place to a closer study of the life history of microorganisms living a parasitic and an episitic existence within the animal body and an

attempt to gain a fuller understanding of the processes involved in infective disease. It is therefore becoming more and more difficult to distinguish between bacteriology and protozoology and the science of immunology. It appears that few diseases are dependent on the mere introduction of a virus into the body. The interaction between the living intruder and the living host is a complex biological problem which is still but imperfectly understood. Much work has been carried out within the past twelve months in the effort to illuminate the pathogenesis and aetiology of infective diseases.

The Schick test has been reviewed from many aspects by Sheldon F. Dudley and its practical application has been discussed. He has emphasized the importance of the manner in which the study of the spread and distribution of diphtheria bacilli and of the special immunity revealed by the Schick test, has clarified our knowledge of herd diseases.

A clinic for diphtheria carriers was established at Guy's Hospital in 1926; L. W. Cann has now published an account of the work accomplished at this clinic. An arbitrary definition of a carrier was set up and every child referred to the clinic was examined in a routine manner. Those who were found to yield evidence of the carrier state, were subjected to general and local treatment. A vaccine of the Klebs-Löffler bacillus was used for some, while in other children the filtrate of a broth culture of *Bacillus pyocyanus* was applied locally. No bactericidal effect of this filtrate was determined. The advantages gained by the elimination of carriers from schools were held to be few, since susceptible children would still come in contact with diphtheria and with carriers of diphtheria bacilli not of school age. Cann concludes that Schick testing and immunization will lead to better results.

The investigation of a typhoid carrier by G. Nesbitt-Wood has indicated the importance of the gall bladder as the chief site of storage of typhoid bacilli. It will be remembered that Ledingham demonstrated this fact many years ago. Typhoid bacilli were isolated from the gall bladder by Nesbitt-Wood; the organ was then opened and the bacilli were recovered from the mucosa and from some calculi contained in the bladder. The patient

was a nurse. Ordinary cleanliness had enabled her to carry out her duties for three years without transmitting the disease to any of her patients or associates. The gall bladder was treated after it had been opened and subsequently repeated examinations failed to reveal typhoid bacilli in the faeces.

The bacteriology of broncho-pneumonia in children has engaged the attention of W. Glen Liston. This worker has drawn two conclusions from his investigations. In the first place he found that Pfeiffer's influenza bacillus is intimately associated with broncho-pneumonia in children. In the second place he formed the opinion that the *Bacillus influenzae* opens a path to the invasion of the body by secondary microorganisms, particularly streptococci, pneumococci and staphylococci. The secondary invaders give rise to septicaemia, pyæmia, empyema, peritonitis and pericarditis.

In the early years of the present century various attempts were made to determine the chemical composition of bacteria. Tubercle bacilli were examined in this way; Rüppel, McLeod and Bulloch succeeded in isolating various constituents of the acid-fast bacilli and in determining their chemical composition. The analysis of the chemical composition of bacteria is again receiving the attention of investigators. Some important work on the relation of chemical composition and virulence and pathogenicity has been conducted. Heidelberger, Avery, Zinsser and Landsteiner have introduced a new conception into the study of virulence. The bactericidal action of the nitroso compounds has been investigated by E. A. Cooper and R. B. Haines. The effect of the composition of artificial media on the growth of certain organisms has been studied by V. Reader.

The method of Heist and Solis Cohen of pathogen-selective culture from various foci has aroused considerable interest. In Australia and elsewhere promising results have been obtained in rheumatoid and other forms of arthritis. C. H. Shearman has done good work on this subject and R. V. Graham has spoken of the results he has obtained in actual practice.

C. I. B. Voge and others have endeavoured to determine the disease production of *Brucella*

*abortus* in human beings. It has been found that it causes a form of intermittent fever in infants and children.

The meningococcus has been the subject of a special study by E. G. D. Murray, who has published a report on this subject under the auspices of the Medical Research Council. The effort to differentiate the haemolytic streptococci has not met with much success. The question of the specificity of the scarlatinal and of the erysipelar forms has further given rise to a considerable amount of work.

#### Biological Chemistry.

Biochemists have produced a great amount of new work during the past twelve months, some of which promises to be of considerable importance. The subject of the vitamins continues to occupy the attention of many investigators. It has been demonstrated by Moore that the carrot root is a richer source of vitamin *A* than has been suspected. It appears that the vitamin is included in the pigment carotin in carrots and possibly in other vegetables. Further attempts have been made to investigate the chemical nature of vitamin *A*, particularly by Drummond and Baker. It will be remembered that Funk claimed soon after the first demonstration of the accessory food factors that he had discovered the formula of the water-soluble vitamin *B*. Further study caused him to modify his views and other workers concluded that there was no evidence that vitamin as a chemical substance had been separated in pure form. It is indeed doubtful whether it exists independently of other fractions of foods, just as it is probable that enzymes have no independent existence apart from the globulins. E. Hoyle, working under the auspices of the Medical Research Council, has carried out tests on honey from England and from the West Indies. He found that both kinds were deficient in vitamins *A*, *B*, *C* and *D* and that this deficiency was not the result of deterioration consequent on treatment or storage. House, Nelson and Haber have investigated the vitamin *A*, *B* and *C* content of tomatoes and have compared those ripened naturally and those ripened artificially. They discovered that the commercial method of ripening tomatoes in an ethylene-air mixture produces a fruit which is as rich in vitamins

as fruit picked green and ripened in the air. B. Sure, M. C. Kik and D. J. Walker have published some articles on the effect of avitaminosis on the haematopoietic function. Their studies covered vitamins *A*, *B* and *E*. They have also investigated the vitamin requirements of sucklings. B. Sure and M. E. Smith have undertaken a research into the effect of vitamin deficiency on carbohydrate metabolism. G. O. and M. M. Burr have fed rats on a diet extremely poor in fats and have induced a disease. The disease is readily curable by the addition of fats to the diet.

C. A. Elvehjem, H. Steenbock and E. B. Hart have continued their researches on the part played by copper in the metabolism of the body. They have examined the copper content of milk, vegetables and other articles of diet and have followed the distribution of copper in haemoglobin. Closely connected with this subject is the alleged avidity of the liver for copper. C. J. Polson has fed guinea-pigs on food to which copper has been added and has discovered an iron-free pigment allied to haemofuscin in the liver. The suggestion that some copper containing constituent might lend to liver its healing power in pernicious anaemia, seems to have been disproved. P. Titus and J. S. Hughes have performed experiments which have yielded evidence that both manganese and copper are stored in the animal body and that both are effective in the utilization of iron in the formation of haemoglobin.

Some interesting work has been conducted on the variation of the blood sugar curve during pregnancy and the puerperium.

H. Millet has found that the claim that cancer can be diagnosed by an alteration of the hydrogen ion concentration of the blood, cannot be substantiated. Up to the present time no chemical reaction has been discovered which is characteristic of malignant disease.

Some new methods of estimating chemical substances in the blood have been devised. J. H. Roe and B. S. Kahn have worked out a method of estimating calcium in the blood. It is an improvement on the method described by the same worker in 1926. P. L. Kirk and C. L. A. Schmidt have described a micro-filter which facilitates the

analysis of small amounts of calcium by the volumetric method. The new procedure is both rapid and accurate. B. S. Kahn and S. L. Leiboff have described a rapid and accurate method for the estimation of urea in blood. The urea solution is digested in acid in a special pressure tube for ten minutes at 150° C. and the urea is converted by this into ammonia. The estimations are made colorimetrically after the addition of Nessler's solution.

Stanley Benedict has devised two processes for the purification of picric acid for creatinine determinations. These methods yield satisfactory results, even when very impure picric acid is employed.

O. Folin has continued his work on the copper methods of determining the sugar content of blood.

### Current Comment.

#### ENDOWMENT OF RESEARCH.

We have been informed that Mr. A. Liston Wilson, of *The Auckland Herald*, has given the sum of five thousand pounds to Dr. N. D. Royle for research purposes. The gift is unconditional and its expenditure is left to the discretion of Dr. Royle. It is his intention to establish a research scholarship at the University of Sydney for the purpose of pursuing research in spastic paralysis and allied subjects.

The endowment of research by private individuals is always welcomed by the medical profession. It is an indication of the recognition of the value of original work in medical science to the community. Generous gifts, such as that of Mr. Wilson, are few. Unfortunately medical research is costly and relatively large sums are needed even for the most specialized piece of research. Dr. Royle finds that £20,000 would be needed for the satisfactory prosecution of the investigations he has begun. He has therefore determined to institute a fund for this purpose. We invite members of the medical profession and their patients to subscribe to this fund. Contributions to the Spastic Paralysis Research Fund may be forwarded to Dr. N. D. Royle or to the Editor of *THE MEDICAL JOURNAL OF AUSTRALIA*. All contributions will be acknowledged in these columns.

#### MEDICAL BENEVOLENCE.

In March, 1926, the Medical Benevolent Association of New South Wales adopted new rules and issued a special appeal to medical practitioners in

the State to become either life members or annual subscribers to the fund. Prior to that date the fund was a small one and was used for the assistance of medical practitioners and their dependants in distress. In 1926 the subscriptions amounted to £148. The new rules introduced a fresh principle. Subscribers became members of the association and the fund was provided as a sort of insurance. The members in need or their widows, families and dependants have a right to assistance out of the fund. The council of the association reserves to itself the power to help any member of the medical profession whether or not a member of the association, if it is held that there is urgent need for assistance. The result of the appeal was satisfactory. Many members became life members; at the following annual meeting it was announced that annual subscriptions amounted to £176 and the payments by life members £521. Two years later the annual subscriptions amounted to £216, while thirteen medical practitioners joined as life members. It may be pointed out that it is very disheartening to find that out of approximately 1,700 practitioners only 285 have given their support to this admirable institution. Of this number seventy-nine are life members. Moreover, it was anticipated that the list of subscribers would increase each year. It seems that it is remaining deplorably stagnant.

In each State there is some provision for medical benevolence. Information concerning the arrangements have been submitted to *THE MEDICAL JOURNAL OF AUSTRALIA* for publication only in the case of New South Wales. The duty of every registered medical practitioner in comfortable circumstances includes that of offering a helping hand to his colleagues in adversity and to the widows and children of deceased colleagues who have been left without adequate provision. The members of the medical profession have the reputation of being charitable and of upholding high ideals. It is a small matter to contribute one guinea a year or to make a single payment of ten guineas to enable a well established organization to assist doctors in penury or the needy relatives of deceased doctors without publicity, without embarrassment to the recipient and without challenge of the cause of the misfortune. The spirit of charity should impel each medical practitioner to contribute to the fund. He should give and forget that he has given. If he himself meets with bad times and adversity, he will derive benefit. But his object in subscribing should be for his colleagues and for the honour of his profession. Those who subscribe to a medical defence society or union, and they constitute the majority of general practitioners, should not hesitate to expend an equal sum for the purpose of medical benevolence.

A small fund is relatively useless, for calls may be large and are always urgent. The subscriber should remember that his contribution and that of his neighbour will make all the difference between a dole and adequate help. We appeal to all members to contribute to a medical benevolent fund.

## Abstracts from Current Medical Literature.

### NEUROLOGY.

**Encephalomyelitis After Measles.**  
 J. G. GREENFIELD (*Brain*, July, 1929) states that the encephalomyelitis which may occur in the convalescence of measles, is as a rule a disease clinically distinct from poliomyelitis, *encephalitis lethargica* or Landry's paralysis, mainly because it usually ends in complete recovery. The examination of a body of a person after death from this disease and a review of the literature indicate that the disease is characterized anatomically by three main changes: (1) Diffuse congestion of the brain, especially the white substance; (ii) a discrete perivascular infiltration with round cells; (iii) small perivascular zones of demyelination. The last is most characteristic. As between the encephalomyelitis of measles and that which may follow vaccination and small pox, no clinical or pathological distinction can be drawn. The epidemiological incidence supports the similarity of the two diseases. It is likely, therefore, that both are caused by an unknown virus which spreads in epidemic waves, but produces no disease unless stimulated to activity by the exanthem.

**General Paralysis of the Insane.**  
 ANDOR Ruzicska (*Psychiatrisch Neurologische Wochenschrift*, May 4 and 11, 1929) from observations on general paralysis of the insane as arising in Hungarian mental hospitals, found as follows. Between the years 1909 and 1921 relative to the total admissions of all kinds, there was a fall in the number of general paralytics from 21.9% to 10.7%. Though from 1921 to 1927 the figures swung upwards to 16%, there was still an obvious margin, showing a numerical decline. In regard to age incidence, since 1921 there had been a relative increase in the number of older as against younger patients. The period between infection with syphilis and onset of mental disorder ranged in half the total of patients between ten and twenty years, in a quarter of the patients the period was less than ten years and in the remaining quarter over twenty years. In patients with an incubation period of less than ten years, the histories usually indicated that treatment with mercury and "Salvarsan" had been inadequate.

#### Psychogenic Factors in Post-Traumatic Neuroses.

W. F. SCHALLER AND M. R. SOMERS (*The Journal of the American Medical Association*, September 28, 1929) state that in the diagnosis of traumatic neuroses, the only psychic factors seriously considered, when organic cause has been eliminated, are those of litigation and desire for compensation. Yet these patients on analysis yield a wealth of other important factors, such

as mental shock or fear states, poverty, deformities, lack of occupation or interest, unfavourable suggestion of different kinds, including suggestion of serious disability on account of continual compensation, combined with introspection, wrong diagnoses, unskilled treatment, desire for redress against alleged negligence, marital difficulties, unsuitable environment or return to arduous or disagreeable work. Another important character of these neuroses is the occurrence of what may be termed a precipitation point which is an expression of the climax of the period of meditation and results in the fixation of the neurosis. This precipitation point occurs relatively early, at the one hundred and seventh day in the writers' series of cases, and marks the entry of a resistive psychoneurosis as a new factor in industrial disability and compensation.

#### Homonymous Hemianopia as Primary Sign of Cerebral Tumour.

W. I. LILLIE (*Proceedings of the Mayo Clinic*, August 28, 1929) shows that when initial precipitous homonymous hemianopia is noticed and is followed some time later by progressive hemiplegia or hemianesthesia associated usually with homolateral diminution of the light reflex, all lesions except tumours may generally be excluded as the cause. This syndrome was observed only rarely, but when it did occur there was always a tumour situated in the roof of the lateral part of the transverse fissure involving the optic tract primarily and extending to affect the *basis pedunculi* or internal capsule secondarily. The transverse fissure partly accommodates the choroid plexus and is related to certain basal nuclei. The recognition of this syndrome is of clinical significance because the site of the lesion makes it surgically inaccessible and correct preoperative diagnosis is of the highest importance.

#### Tumours of the Hypophyseal Stalk.

J. W. BECKMANN AND L. S. KUBIE (*Brain*, July, 1929) have analysed the clinical findings in twenty-one cases of tumour of the hypophyseal stalk and have contrasted them with the findings in a series of cases of adenoma of the hypophysis and suprasellar endothelioma. They found that stalk tumours more constantly produced increased intracranial pressure, especially in children and adolescents. In both kinds of tumour the visual defect was dominantly bitemporal. In most of the patients with stalk tumour endocrine disturbances arose. Disturbances of water balance, on the contrary, were found only six times and in nine analyses no characteristic blood sugar reactions could be discovered. Outspoken somnolence occurred in but one of the patients with adenoma and two of those with endothelioma, whereas as it was found in nine with stalk tumour. Here, however, it occurred late in the clinical history and was confined to children and young adults.

While toxic states arose in eight patients with stalk tumour, only one with adenoma had a comparable episode. Pressure upon the brain stem and basal ganglia was more evident in stalk tumours than in the other varieties.

#### Cortical Lesions in Parkinsonism.

IVAN BERTRAND AND GEORGE CHOROBISKI (*Revue Neurologique*, August, 1929), having made a careful examination of the brain in six cases of Parkinsonism following encephalitis, emphasize the constant finding of extensive cortical changes. These are not gross in character, they consist mainly of Nissl's *akute Schwellung* and are specially seen in the cells of superficial layers. The fact that the change is unattended by perivascular thickening or neuroglial foci is no argument for the trophic or abiotrophic nature of the degeneration. Neuroglial nodules and perivascular proliferation are fundamentally indicative of an active disintegration of nervous tissues; they do not in doubtably denote infection. The writers think that the virus of encephalitis persists, perhaps much reduced in activity, in deeper parts and is responsible mainly for neuroganglionic lesions. In addition there occur secondary degenerations and trans-synaptic reactions which are indistinguishable from primary lesions. It is suggested that Parkinsonism is the product of multiple lesions diffused throughout the nervous system, but having a predilection for certain fibre systems and certain groups of cells.

#### An Heredo-Familial Disease Resembling Disseminated Sclerosis.

FERGUS R. FERGUSON AND MACDONALD CRITCHLEY (*Brain*, July, 1929) found no less than thirteen individuals in two generations of one family affected by a disease resembling disseminated sclerosis and apparently the disease started in two brothers. In ten instances the age of onset lay between thirty-six and forty-five years; in the other three it was at thirty-three, twenty-seven and twenty-one respectively. There were four females and nine males. The first symptom was weakness and unsteadiness of the legs and this was usually followed by difficulty in speech, visual disturbances, dysesthesia of the arms and legs and bladder disorder. The disease advanced steadily, with a duration of five to ten years, when it was fatal. The psychical state was characterized by euphoria and emotional instability. Ocular signs were optic atrophy in four patients, defect or absence of upward movement of the eyes in seven, diplopia and nystagmus. Signs of pyramidal tract disease were present in most patients, but were variable. A cerebellar type of incoordination was sometimes noted. Speech defect occurred in twelve patients. Extra-pyramidal signs, such as fixity of expression and tremors of face, tongue and hands, suggesting Parkinsonism, were common. Reduction of sensation

to light touch and pin prick was noted in eight patients; this was most pronounced in the legs. Precipitancy of micturition leading to occasional incontinence was the bladder disorder. The authors discuss the resemblance of the condition to disseminated sclerosis. Incompatibilities are the absence of remission and of retrobulbar neuritis and the presence of well marked ocular palsies and Parkinsonian signs, not to mention the extraordinary familial affection. Pseudosclerosis, heredo-familial neurosyphilis, the heredo-cerebellar ataxia of Marie are other diagnostic possibilities. The writers have no pathological evidence with which to round off their record, but think clinical grounds alone justify them in naming the affection an "heredo-familial disease resembling disseminated sclerosis."

#### THERAPEUTICS.

##### Scarlet Fever.

H. S. BANKS AND J. C. H. MACKENZIE (*The Lancet*, February 23, 1929) record the results of treatment of scarlet fever patients with intravenous injections of antitoxin. Four hundred and four patients were treated. Ten cubic centimetres were given to a child or an adult with a moderately severe infection; twenty cubic centimetres were given to an adult with a more severe infection. Concentrated warmed serum was slowly introduced, undiluted, into the median basilic vein. In 60% of patients a rigor and rise of temperature, sometimes to 41.6° C. (107° F.), was noted within three-quarters of an hour; the colour was often poor and the pulse rapid. To counteract this the foot of the bed was raised and hot bottles and blankets were applied as soon as the injection was given; subcutaneous injection of 0.18 to 0.42 mil (three to seven minims) of adrenalin was apparently of value in mitigating the reaction; adults were given 1.6 mils (twenty-five minims) of "Nepenthe" as soon as the reaction had passed. In children under two years, in patients with a history of asthma or with other evidence of protein sensitiveness, in acute bronchitis or other acute respiratory disease, intravenous injection is contraindicated. It was not employed after the fifth or sixth day of the disease. The result of this treatment was usually dramatic, all acute symptoms being relieved within twenty-four hours. No serious complications occurred, such as *otitis media*, nephritis or arthritis. One death occurred in a weak child suffering from acute bronchitis. The prevailing type of reaction was mild, but several sharp reactions occurred. Serum rashes occurred in eleven instances. Secondary pyrexia was noted in thirty-three patients, a three-day pyrexia of 37.8° C. (100° F.) or more beginning on the fourth day after admission. Desquamation was generally absent when the antitoxin was

given within the first four days of the disease. One hundred patients were subjected to the Dick test fifteen to twenty days from the onset of the disease; eighty-eight failed to react and twelve reacted. It was suggested that a preliminary intradermal test should be done when there was a possibility of the occurrence of protein sensitiveness; a definite reaction would contraindicate intravenous therapy. A serum with a low protein content, concentrated and refined, such as is used for diphtheria, should, if produced, minimize any effects from protein shock. A word of warning is uttered against mixing different brands of serum.

##### Poliomyelitis.

J. M. McEACHERN, B. CHOWN, L. G. BELL AND M. MCKENZIE (*Canadian Medical Association Journal*, April, 1929) report the results of treatment of one hundred and sixty-one patients suffering from poliomyelitis during 1928. Fifty-seven patients received twenty-five cubic centimetres of convalescent serum intramuscularly in the pre-paralytic stage of the disease; 93% completely recovered. There were no deaths. Fifty-four patients received no serum; only 26% completely recovered, 11% died and the rest were paralysed. Thirty-three patients were given serum after the onset of paralysis; 22% made a complete recovery, 33% died and 45% became paralysed. The serum used was the pooled sterile serum which did not react to the Wassermann test and which was collected from six to eight donors who had had the disease from a few months to thirty-three years previously. Standard doses of twenty-five cubic centimetres of serum given intramuscularly were used. Eight litres of serum were administered during the epidemic; there was no unfavourable reaction. The conclusions were that convalescent serum is of value in the pre-paralytic stage of poliomyelitis and that the intramuscular route of administration is simple, safe and sufficiently efficacious to justify its adoption during an epidemic.

##### Ephedrine.

G. B. LAKE (*Medical Journal and Record*, July 3, 1929) has recorded some personal experiences with ephedrine. He suffered with periodical attacks of bronchospasm and also periodical seasonal hay fever. The latter condition had been ameliorated by five or six annual preseasional courses of immunizing doses of the pollen antigen from short ragweed. The bronchospasm could be relieved by 0.18 to 0.42 mil (three to seven minims) of 1 in 1,000 epinephrine or by inhaling belladonna, stramonium and potassium nitrate fumes. Later ephedrine was used, the hydrochloride, sulphate, the iodide and synthetic form of the drug, the latter in double the dose of the natural preparation. A dose of 0.03 to 0.06 gramme (one-half to one grain) of ephedrine usually relieved either hay fever or bronchospasm in thirty to forty-five

minutes. Shakiness was a frequent symptom; vesical spasm, insomnia and cramps also occurred. Atropine sulphate in doses of 0.13 milligramme (one five-hundredth of a grain) to each 0.03 gramme (half grain) of ephedrine often relieved the shakiness. Ephedrine caused a feeling of alertness. There was no evidence of habit forming effects after two years' use. The drug was usually taken by mouth.

##### Lobar Pneumonia.

W. L. LAMB (*Edinburgh Medical Journal*, October, 1929) draws attention to the difficulty of assessing the value of any one form of treatment in lobar pneumonia. He discusses treatment by means of nuclein and vaccine therapy in this disease. Eleven patients were treated with nuclein. The preparation employed was the nuclein solution number one of Parke, Davis and Company, containing 5% nucleic acid and the dose was usually two cubic centimetres, given by the subcutaneous route. Sometimes the dose was repeated next day. Of the eleven subjects, two died. One of these was a young man who had a leucocyte count of 26,000 per cubic millimetre, which was little affected by nuclein; the other was an old man to whom nuclein was given late. Of the nine who survived, two only had a definite crisis, one on the fourth day and the other on the seventh day. In the majority a good leucocytic response was obtained after the administration of nuclein. In the light of this series nuclein cannot be regarded as a specific for pneumonia. Opinions vary as to the value of vaccine therapy, but the weight of opinion is inclined to the use of a vaccine. The vaccine used by the author was a mixed stock one as prepared for Saint Mary's Hospital by Parke, Davis and Company. It was given subcutaneously as soon as the patient was admitted to hospital in doses of 100 to 200 million organisms for an adult and half the dose for a child. It was sometimes repeated. As many as four or five doses might be given if the temperature remained elevated. Twenty-four cases are recorded. Eight of the patients died. This is considerably above the average mortality, but a bad prognosis would have been given for all these patients before the vaccine was administered, as there was either a poor response to infection as shown by a low temperature or a history of alcoholism. Of the sixteen patients that survived, eleven had a crisis. In most patients who were vaccinated early, that is before the fourth day, the crisis occurred within forty-eight hours. The author concludes that nuclein, though it almost invariably raises the white count, does not appear to have any marked effect on the course of uncomplicated lobar pneumonia, also that a mixed stock vaccine is of use in certain cases of pneumonia when given early enough, but that when the original prognosis is bad, the vaccine will not save the patient's life.

## British Medical Association News.

## SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, On November 1, 1929, Dr. MERVYN PATTERSON, the President, in the chair.

## Lateral Sinus Thrombosis.

Dr. H. V. FOXTON showed a patient who had suffered from lateral sinus thrombosis. A.O., a school boy, aged sixteen years, gave the following history, noted by Dr. Breslin. On July 31, 1929, he had been admitted to Cunnamulla District Hospital with broncho-pneumonia following influenza. The temperature had fallen to normal by August 5, 1929, and the chest condition had cleared up. All the other systems were normal.

On August 12, 1929, during convalescence, a purulent discharge had appeared in the right external auditory meatus. There had been no complaint of earache preceding the discharge and no rise of temperature. There had been a history of discharge from the right ear on several occasions over a period of five years. The *membrana tympani* had manifested a well defined central perforation with no congestion of note in the membrane itself. On August 13, 1929, the temperature had been 37.5° C. (99.5° F.) with slight tenderness of the right mastoid antrum. On August 14, 1929, the temperature had been normal and there seemed to be no tenderness. On August 20, 1929, he had seemed slightly giddy and next day he had had a rigor with a temperature of 39.7° C. (103.6° F.). There had been then no mastoid tenderness, but tenderness had been present in the neck along the anterior border of the sterno-mastoid muscle.

Dr. Breslin's diagnosis had been right-sided lateral sinus thrombosis. The patient had been promptly sent to Brisbane, six hundred miles distant, and had been admitted to the Mater Misericordiae Public Hospital on August 23, 1929. On admission he had looked very ill and had had a temperature of 40.5° C. (106° F.). After admission he had had haemoptysis and a rigor. The right meatus had been full of pus. There had been but little if any mastoid tenderness. The next morning Dr. Foxton had performed a Schwartz operation on the right mastoid process and had laid bare the lateral sinus at an unusual depth. The sigmoid sinus almost down to the bulb had been a yellowish grey colour and not pulsating. Its walls had been thickened and stiff. At its upper end there had been a thick plaque the size of a sixpenny piece, but no central occluding clot had been present. The condition had been dealt with in the usual way and the internal jugular and facial veins had been ligated. The jugular vein had appeared to be quite healthy. The bone of the mastoid process had been extremely hard and, though it was hyperemic throughout, signs of pus had been seen only in the antrum and its immediate vicinity. There had been no perisinus abscess. The evening rise of temperature on the day following the operation had not reached 37.8° C. (100° F.) and on the next day the temperature had been practically normal. Two days after operation an abscess over the inner end of the right clavicle had been opened and there had been tenderness and swelling over the right shoulder joint which subsided gradually. One week previously he had felt well enough to have his tonsils removed.

In conclusion Dr. Foxton said that he would like to express appreciation of Dr. Breslin's promptitude in recognizing the condition.

## The Treatment of Haemorrhage from Peptic Ulcers.

DR. KEITH ROSS read a paper entitled: "The Treatment of Haemorrhage from Peptic Ulcers" (see page 168).

DR. ELLIS MURPHY congratulated Dr. Ross on his paper. It had the imprint of originality and most of the patients had been under Dr. Ross's own observation. Dr. Murphy had been struck with the figures and especially with the high mortality rate. He had had many patients under

his care in the Mater Misericordiae Public Hospital and in the previous five years, though many patients had suffered from gastric haemorrhage, there had been very few deaths. In gastric haemorrhage the type of ulcer present decided what would happen. The classification which Dr. Murphy preferred, was: (i) Acute erosions, more common in young people and especially in the days of chlorosis. These were generally multiple up to twenty and were very difficult to demonstrate; operation was almost invariably fatal. (ii) The subacute type of ulcer. They were generally multiple, the ulcers being three or four in number. (iii) The chronic penetrating ulcer which gave rise to most fatal haemorrhages. There was generally a big vessel at the base of the ulcer and if it was the splenic or any large artery, there generally resulted an aneurysm and even when surgical treatment was adopted, these haemorrhages were frequently fatal.

With regard to treatment from the medical side, a sedative was given as soon as possible and the patient was kept quiet without any interference for twelve hours. No ice or enema was given. Then saline solution and glucose were given by the rectum for twenty-four hours, then a modified diet and in forty-eight hours routine treatment. After forty-eight hours, if the patient was no better, operation was performed.

Hurst used perchloride of iron; others gave enemas of water at a temperature of 48.8° to 54.4° C. (120° to 130° F.). Wilcox used intramuscular injections of calcium chloride, 0.06 gramme to six mils (one grain to 100 minims) of water. Dr. Murphy thought that blood transfusion was contraindicated in most cases, but if operation were decided on, then transfusion was indicated.

DR. NEVILLE SUTTON thanked Dr. Ross for his paper and congratulated him especially on the production of figures of his personal observation at the Melbourne Hospital. There were a few points that he would like to stress. Walton, a very fine gastric surgeon, in an article on the surgical treatment of haematemesis in *The Lancet* stated that he had operated on some young women with acute gastric erosions who gave a history of ulcer for a period of four to six weeks. He stated that by doing a posterior gastro-enterostomy he had saved eleven out of nineteen patients, a mortality of about 35%. Dr. Sutton could not see why a gastro-enterostomy should stop the haemorrhage and doubted whether the mortality rate was as great with medical treatment. Walton considered chronic ulcers in two classes, gastric and duodenal. He stated that a patient with a chronic gastric ulcer should not be operated on in the stage of hemorrhage, if there was a massive haemorrhage a large vessel had probably been eroded and the ulcer was likely to be adherent posteriorly and no surgical procedure was feasible to stop the haemorrhage without very grave risk of killing the patient. Patients with chronic duodenal ulcers with haemorrhage, he thought, should be operated on as soon as the haemorrhage occurred, but he thought it far preferable to operate on those with chronic duodenal ulcers before the onset of hemorrhage.

Dr. Sutton felt he must stress the point of diagnosis which could be very difficult in some cases of haematemesis, as a complete history was not easy to elicit; thus he thought it would prove difficult to practice the differential treatment advocated by Walton. Dr. Robert Hutchinson in summing up a discussion on this subject before the Royal Society of Medicine in 1924, said that haematemesis apparently was not a very dangerous symptom, but some of the speakers had rather underestimated the danger. The accurate diagnosis of the cause of the haematemesis was very important. With modern methods surgeons should be able to make a direct attack on the bleeding point. Dr. Sutton thought this represented a fair presentation of that discussion, but he thought that more exact diagnosis than was usually made was necessary before it could be laid down as a general rule that the immediate treatment of haematemesis in suspected chronic ulcer was surgical.

DR. E. S. MEYERS said that Dr. Sutton had mentioned several important points he wished to bring out. Up till 1928 he had not seen a death from haemorrhage, but in that year he had seen one death from duodenal haemorrhage and one from gastric in patients who were not operated upon. He asked Dr. Ross what proportion of

deaths in his series was due to gastric and duodenal haemorrhage respectively and for the *post mortem* results in all cases.

He agreed about the correct diagnosis and the direct attack being important and thought it was unscientific to do a gastro-enterostomy for haematemesis. Osler advised the hypodermic use of iron for the anaemia caused by gastric haemorrhage, but his treatment seemed to be out of fashion and Dr. Meyers thought it should be reintroduced.

DR. A. J. REYE congratulated Dr. Ross on his excellent paper. He agreed with Dr. Sutton's point about the diagnosis in gastric haemorrhage and thought that the diagnosis between peptic ulcer and portal cirrhosis was very important. In his ward at the general hospital more haemorrhages had resulted from portal cirrhosis. Where haemorrhage was definitely from a chronic ulcer, operation was always advised after recovery from the haemorrhage. Some patients with ulcer refused operation.

With regard to medical treatment he did not advise morphine if the patient would keep quiet, in the hope that the stomach would contract and stay firm and so tend to check haemorrhage. He advised the administration of ice and the use of saline solution and glucose *per rectum*. Some of the patients came in without any history at all, recovered, showed no evidence of gastric ulcer on X ray examination and left the hospital and were heard of no more. It was questionable whether the haemorrhage in these persons was from ulcer. He did not advise the use of iron, as he thought it irritated the stomach.

DR. ALEX MURPHY agreed with Dr. Reye that a number of cases of haematemesis was due to portal cirrhosis which was one of the most difficult diseases to diagnose. In treatment Dr. Murphy said he liked to use morphine, but he found that the patients became thirsty and if they did not get sips of water, they became restless.

He had used "Haemostatic Serum" and thought it helped to stop the haemorrhage. He considered there were points in favour of transfusion, due to shortening of the coagulation time following the procedure.

DR. ALAN LEE congratulated Dr. Ross on his paper and said that he agreed almost completely with the thesis he had brought forward. He considered the natural method of treating haemorrhage was by a direct attack on the bleeding point and questioned why in gastric haemorrhage this had been departed from.

He quoted the example of intraabdominal bleeding from an ectopic pregnancy which many experienced surgeons thought was no more likely to be fatal than a haematemesis, and yet in which the direct attack on the bleeding was invariably made. When surgeons became as familiar with the direct surgery of gastric ulcer as they were with removal of a Fallopian tube, he thought haematemesis which from the history was probably from a chronic gastric or duodenal ulcer, would become an exclusively surgical indication.

DR. ROSS in replying said that he realized that diagnosis was sometimes uncertain and that it was impossible to diagnose all these conditions correctly. However, he believed that in the great majority of cases it was possible to establish a correct preoperative diagnosis.

In the differential diagnosis of haematemesis French stated that there were only three common conditions, *gastrostaxis*, gastric ulcer, portal cirrhosis. Gastrostaxis was called acute ulceration. In his experience portal cirrhosis was a rare disease. For instance, among five hundred consecutive autopsies at the Melbourne Hospital he could recall only one case of advanced cirrhosis. He himself had seen severe haematemesis in carcinoma of the stomach, fibroma of the stomach, portal cirrhosis, splenic anaemia, aortic aneurysm and advanced nephritis. Most of these conditions could readily be distinguished from ulcer of the stomach.

He fancied he had been misunderstood in regard to the treatment of acute ulcer with haemorrhage, as he himself believed firmly in medical treatment. He had more than once seen a fatal result follow gastro-jejunostomy.

So far as he knew, iron had not been given by mouth to any of these patients. "Haemostatic Serum" had been given to many, but he had been unable to convince himself

that it had any action. Transfusions had been given to the majority of the patients. Patients for operation had been given blood at the commencement of the operation and sometimes again on their return to the wards. The cause of death in the twenty-six cases could be stated as follows: Nine patients with chronic ulcers had died of haemorrhage while undergoing medical treatment. Four with chronic ulcers had died following operations after the third or fourth haemorrhage at short intervals. One with chronic ulcer had died following operation at the first recurrent haemorrhage. Two chronic ulcers had been associated with other serious intercurrent diseases. One patient with chronic ulcer had died of post-operative haemorrhage after it had ceased under medical treatment. Seven with acute ulcers had died under medical treatment. Two with acute ulcers had died after operation.

Finally, Dr. Ross again urged that when skilled surgery was available, early operation should be given a trial in haemorrhage from chronic ulcer.

#### NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

O'Brien, Denis Francis, M.B., B.S., 1928 (Univ. Melbourne), 83, Yarra Street, Geelong.

Phipps, Henry David, M.B., B.S., 1928 (Univ. Melbourne), 38, Foam Street, Elwood, S.3.

Radic, John Peter, M.B., B.S., 1926 (Univ. Melbourne), 185, Toorak Road, South Yarra, S.E.1.

Searls, John Robert, M.B., B.S., 1928 (Univ. Melbourne), Alfred Hospital, Prahran, S.1.

Watson, Heyworth Alexander Wiggleworth, M.B., B.S., 1929 (Univ. Melbourne), 14, Tintern Avenue, Toorak, S.E.2.

Klug, Cecil Conrad, M.B., B.S., 1928 (Univ. Melbourne), Ozone Hotel, Queenscliff.

Munro, Robert, M.B., B.S., 1929 (Univ. Melbourne), Melbourne Hospital, Melbourne, C.1.

Bossence, William Adamson, M.B., B.S., 1928 (Univ. Melbourne), 23, Manning Road, East Malvern, S.E.5.

The undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

McClelland, Henry Walter Hamilton, M.B., B.S., 1929 (Univ. Sydney), "Linthorpe," Linthorpe Street, Newtown.

The undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Kelly, John Augustine, M.B., B.S., 1927 (Univ. Sydney), c/o Dr. R. H. Macdonald, South Grafton.

McEwen, Ronald James Brohan, M.B., Ch.M., 1926 (Univ. Sydney), 284, Clovelly Road, Clovelly.

#### LISTS OF MEMBERS.

THE lists of members of the several Branches of the British Medical Association in Australia are now in the press and will be available in a short time. Copies can be purchased from the office of THE MEDICAL JOURNAL OF AUSTRALIA at one shilling each.

#### Medical Societies.

##### THE CLINICAL SOCIETY OF THE BRISBANE HOSPITAL.

A MEETING OF THE CLINICAL SOCIETY OF THE BRISBANE HOSPITAL was held at the Brisbane Public Hospital on October 10, 1929, DR. J. M. THOMPSON, the President, in the chair.

#### Prostatic Abscess.

DR. J. J. POWER presented a patient suffering from prostatic abscess. The patient was thirty-four years of age. Ten days after the appearance of a discharge from the urethra containing gonococci, pain in the perineum extending down the thighs had been experienced. He had been treated for one week at his home and had then been admitted under Dr. Power to the Brisbane Hospital. Examination by the rectum revealed an abscess in the right lobe of the prostate. An inverted U-shaped incision had been made in the perineum as in perineal prostatectomy and the tissues had been opened between the *levator ani* and the *transversus perinei*. The apex of the prostate had been felt with the finger and Denonvillier's fascia had been penetrated and pus evacuated. A drainage tube had been inserted and left in place for six days. After its removal healing had followed rapidly.

#### Syphilis and Rheumatic Heart Disease.

DR. N. MARKWELL presented a married woman, aged forty-five years. Her condition was, he stated, interesting for three reasons. In the first place the affection on examination appeared to be a typical rheumatic mitral stenosis, but it had been found that the blood yielded a strong reaction to the Wassermann test. In the second place the patient had passed through eight pregnancies without mishap, although the valvular cardiac lesion had probably been present during the greater part of her life. In the third place the patient had been admitted to hospital after she had had a preliminary course of intramuscular injections of bismuth. She had then been given 0.3 grammes of "Neokharsivan" by intravenous injection, but this had been followed by so severe a reaction that the treatment had to be abandoned. The patient had had rheumatic fever at the age of three years and the signs of mitral stenosis were typical. The electrocardiogram had revealed left-sided preponderance instead of right-sided preponderance. It had been this fact that had stimulated Dr. Markwell to perform the Wassermann test. He stated that about 10% of patients with cardiac lesions had syphilis. It was not seldom superimposed on a post-rheumatic lesion. Syphilis apparently attacked any weak part of the body. The patient had had three premature births; in addition to the eight pregnancies she had had several miscarriages. She had complained of attacks of suffocation in the throat of less than one year's duration. Dr. Markwell intended to give her another course of bismuth injections after an interval and then to make another attempt to ascertain whether she could tolerate one of the arsenobenzol preparations. He anticipated that she would be able to stand the injections, as her other organs were sound. He stated that the action of the bismuth was merely temporary; its value lay in the fact that it seemed to pave the way for the tolerance of the arsenobenzol drugs. He did not think that any permanent benefit would follow until the patient could tolerate moderately large doses of "Neokharsivan." Potassium iodide had to be given with care to these patients.

#### Malignant Disease of the Tonsil.

DR. E. S. MEYERS showed a male patient who had complained of soreness of his mouth for eighteen months following the extraction of a tooth. More recently he had had increasing difficulty in swallowing. An ulcerated mass had been found on the left side of the mouth, extending from the tonsil across the soft palate. No enlarged lymphatic glands had been detected. No reaction had been obtained to the Wassermann test. A snipping had revealed that the tonsil was the seat of a malignant growth. A radium needle had been buried around the tonsil and later a radium collar had been applied with Columbia wax, carrying 1,117 milligrammes of radium at a distance of two centimetres. At the time of the meeting the patient's mouth was no longer sore, the tonsil was healed and the skin reaction was healing.

#### Osteosarcoma.

DR. MEYERS also presented a boy, aged twelve years, who had been hit five weeks previously with a cricket ball on the outside of the right thigh. A short time later

a painful swelling had appeared. When first seen the boy had been found to have a hard, tender swelling on the outer aspect of the right thigh. A skiagram had been taken and a faint shadow was seen in the region of the swelling. A second skiagram taken two weeks later, revealed a distinct shadow which had been diagnosed as an osteosarcoma. The treatment had consisted in the operative removal of a bony tumour, apparently growing from the shaft of the femur. Radium needles had been inserted. The limb had also been treated with deep X ray therapy after the operation. At the time of the meeting no tumour could be detected by radiographic means. The diagnosis had been confirmed by the pathologist.

#### Renal Calculus.

DR. MEYER'S third patient was a married woman, aged thirty-five years. When admitted to hospital she had complained that she had had pain in the left side of the abdomen for three days. The pain was sharp and radiated to the groin. It had not made her roll about. She had vomited two days after admission. There had been no pain after food. There had been no urinary symptoms and no diarrhoea, although the bowels had been well opened. Her menstrual history was normal. Nothing abnormal had been detected on examination, except that there was tenderness in the left iliac fossa. The left kidney had not been palpable. A week after admission laparotomy had been performed and the appendix removed. Nothing abnormal had been found. Nine days later the patient had had a rigor and albuminuria had been discovered. Prior to the operation the urine had been found to contain many pus cells, a few red cells, some motile bacilli, but no casts. Ten days after the operation a blood count had been made. There had been 14,200 leucocytes per cubic millilitre, of which 70% were neutrophile cells, 22% lymphocytes and 6% eosinophile cells. There had been 2% basophile cells. The urea content of the blood was 26 and the urea concentration test had yielded 0.6%, 1.1% and 1.3% in the successive samples. Eight days later a skiagram had been taken and a large calculus had been seen in the right kidney and a shadow in the left ureter. A ureteric catheter had been inserted and had been passed close to the shadow. Stereoscopic pictures had been taken and had revealed that the shadow was lying against the catheter. The patient had been given copious draughts of water and belladonna and the stone in the left ureter had been passed. The functional tests applied to the left kidney had yielded good results. Two months after the first operation the right kidney, together with a large calculus, had been removed; the organ had been found to be pyonephritic. At the time of the meeting the patient was quite well.

#### Drop Wrist.

DR. S. A. C. DOUGLAS showed a girl, aged sixteen years, who had drop wrist following osteomyelitis of the shaft of the left humerus. There was a considerable amount of callus on the humerus and complete loss of power of the extensor muscles of the hand and wrist. There was no loss of sensation. The condition had been present for several months. A plaster cock-up splint had been moulded to the hand in such a manner that the wrist had been kept in full dorsiflexion and the fingers in extension. Massage and faradism had been applied to the muscles and there had been some return of power within a month. At the end of three months there had been good power and ability to hold the wrist in extension. There had also been power of extension of the fingers.

#### Brachial Paralysis.

DR. DOUGLAS also presented two patients who had come to the out-patient department on the same afternoon with similar histories. Two or three days after an operation for appendicitis the patients had noticed severe pain in the left shoulder joint and arm with loss of power. The first patient was thirty years of age. He had had the condition for two and a half years and had practically recovered. There was some wasting of the *infraspinatus* muscle. There was a considerable nervous element which had prevented the patient from using his arm. It was antici-

pated that this would be overcome. The other patient was a boy, aged sixteen years, who had had an operation three months previously. There was wasting and loss of power in the muscles supplied by the fifth cervical nerve. There was no pain. The muscles affected would be placed at rest and recovery should take place. Dr. Douglas suggested that the causation in both patients had been that during anaesthesia for the operation the left arm had fallen over the edge of the table and the upper cord of the brachial plexus had been compressed. Inquiries had been made at the hospitals where the operations had been performed, but no satisfactory information had been received up to the time of the meeting.

## Post-Graduate Work.

### COURSE IN APPLIED PATHOLOGY IN MELBOURNE.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK announces that a special course of ten lecture-demonstrations on recent advances in applied pathology will be given at the University of Melbourne by Professor P. MacCallum in March, April, May and June, 1930. The lecture-demonstrations will be delivered each Tuesday at half past eight o'clock in the evening. The fee for the course is three guineas. Those who intend to participate are requested to send their names to the joint honorary secretaries, Dr. Harold Dew and Dr. W. S. Johnston, 12, Collins Street, Melbourne, as soon as possible and to remit the amount of the fee. Further particulars will be forwarded on application. The following is a summary of the course.

#### Tuesday, March 25, 1930.

The blood and haemopoietic tissues; the nature and relationships of the reacting tissues; the balance of blood cell formation and destruction; differential cellular responses to pathological conditions disturbing the balance; the stability of the erythrocyte; haemoglobin and iron metabolism; the plasma and blood volume; the peripheral blood as a pathological index.

#### Tuesday, April 1, 1930.

The blood and haemopoietic tissues (continued); the interpretation of specific diseases of the blood; secondary and primary anaemias; *polycythaemia rubra*; the leucocythaemias; the spleen and anaemias; tumour relationships.

#### Tuesday, April 8, 1930.

Inflammatory and degenerative conditions of the arteries; anatomy; changes with age; the incidence, pathogenesis and aetiology of arteriosclerosis; fatty deposits, atheroma and calcification; hyaline and amyloid degeneration; the arteries in diabetes; productive endarteritis; mesarteritis; *thromboangiitis obliterans*; purulent arteritis; *periarteritis nodosa*; syphilitic arteritis; aneurysms.

#### Tuesday, April 29, 1930.

Bone; origins and relationships of the tissue; conditions of development and maintenance; calcium and phosphorus; endocrines; vitamins; pathological bone formation and resorption; histology, fractures and repair; non-union; acute osteomyelitis and periostitis.

#### Tuesday, May 6, 1930.

Bone (continued); chronic osteomyelitis and osteitis; tuberculosis; syphilis; rickets and infantile scurvy; the osteomalacias, *osteitis fibrosa* and *osteitis deformans*; age, endocrines and diet; tumours of bone.

#### Tuesday, May 13, 1930.

Cardiac pathology; (a) the myocardium, the blood supply and arterial disease, atrophy and degeneration, the aetiology and consequences of parenchymatous and interstitial myocarditis, acute and chronic, the conducting system of the

heart and pathological lesions; (b) endocarditis, aetiology, pathogenesis and bacteriology.

#### Tuesday, May 20, 1930.

The liver; structure, blood supply and lymphatic connexions in relation to function and the localization of the effects of circulatory disturbances, intoxications and infections; haemorrhage, degenerations, focal necrosis and suppuration; regenerative power of liver tissue; acute yellow atrophy and the cirrhoses; tumours and tumour dissemination.

#### Tuesday, May 27, 1930.

The liver (continued); pathological physiology; experimental pathology; carbohydrate, protein, fat and cholesterol metabolism; detoxication of blood; ascites; bile formation.

#### Tuesday, June 10, 1930.

Diseases of the mammary gland; structure and functional relationships; lactation and involution; acute and chronic mastitis; precancerous changes; the diagnosis of innocent and malignant tumours; Paget's disease; fat necrosis.

#### Tuesday, June 17, 1930.

The ovary; development, structure and function and relation to pathology; involution; oophoritis, acute and chronic; cysts and tumours, teratomata, follicular, luteal and blood cysts, endometrioma and carcinoma; parovarian inflammatory and other cysts; connective tissue tumours; secondary growths; the complications and surgical importance of these conditions.

## Special Correspondence.

### CANADA LETTER.

#### BY OUR SPECIAL CORRESPONDENT.

#### The Winnipeg Meeting.

VISITORS from sister dominions to the joint meeting of the British Medical Association and the Canadian Medical Association at Winnipeg from August 26 to 29, 1930, will be interested in the following brief excerpt from pioneer life in Fort Garry, now Winnipeg. The death of Lady Schultz on October 8 removed one who played a distinguished part in the early history of Manitoba. She went to Fort Garry where there were twenty-seven houses in 1864, and later married the pioneer physician Dr. John Christian Schultz. Six years later a rebellion broke out and her husband was taken by the rebels and imprisoned. She went with him and smuggled in a penknife and gimlet, with the aid of which he made his escape. Dr. Schultz afterwards became a Member of Parliament, a Senator and Lieutenant-Governor of the Province of Manitoba. What momentous changes took place during the last half century of Lady Schultz's life! She saw a little straggling village grow into the large and beautiful city of Winnipeg, capable of entertaining two great medical associations. Visitors who may come from any part of the world, especially the large contingent from Australia, will be most cordially welcomed and will find ample accommodation in splendid hotels and hospitable homes. The President of the Toronto Academy of Medicine assured the writer of a hearty welcome to Toronto to all visitors from sister dominions and the latter would be very pleased to have the address of every one from Australia who purposes visiting Toronto either before or after the meeting.

#### Medical Education.

Reports have been issued from the medical departments of several universities and notwithstanding the increase in literary culture required for matriculation, in number of subjects taught, in length of time and additional

expense, the equilibrium between demand and supply remains unperturbed. Every vacancy in the medical ranks is promptly filled by a young graduate. The enrolments are as follows: At the University of Toronto 761, at the McGill University 467, at Queen's University 292, at Montreal University 278, at Manitoba University 270, at Laval University 241, at Dalhousie University 160. About one hundred women are enrolled.

However great the achievements in medicine during the past half century, the aphorism of Cecil Rhodes still holds true: "So much to do, so little done." One thing should be promptly established: the legal and ethical standing of the so-called specialist. Any recent graduate who thinks that the shortest "cut to fame and fortune" is to "set up" as a surgeon or as a specialist, may do so regardless of the necessary qualifications, hence the cry of the laity against too many operations. Why should not a second degree be obtainable later on in practice that would confer the legal and ethical right to be known as a specialist? This would protect the public, eliminate unfair competition and inspire zeal for post-graduate work.

An important concession has been made recently to those who wish to obtain the much coveted fellowship of the Royal College of Surgeons of England. The first part of the examination can be taken in Canada. Another innovation, very helpful as post-graduate work, is a special series given, one each Wednesday afternoon, at the Toronto Academy of Medicine. The course includes a long list of diseases and their treatment.

#### Items of News.

Prince Edward Island lost its most distinguished physician on September 15 in the death of Dr. Stephen Rice Jenkins. He filled with efficiency many positions, the crowning one being the presidency of the Canadian Medical Association at the annual meeting in Charlottetown, the capital, 1928.

Nova Scotia, long famous as the birthplace of many notable people, scholars, writers, poets, statesmen, now heads the percentage list for centenarians.

New Brunswick loses through illness the valuable services of Brigadier-General Dr. George Acheson.

Montreal has established a board of health for the city. The Jewish population has contributed \$1,500,000 for a new general hospital.

The medical associations of Manitoba, Saskatchewan, Alberta and British Columbia have had very successful annual meetings. This year has set a record in post-graduate work in both western and eastern provinces, through an interchange of prominent physicians. Practitioners everywhere availed themselves of these addresses which were specially designed for those in general practice.

## Correspondence.

### INSURANCE OR NATIONALIZATION.

SIR: In your issue of November 16, 1929, Dr. W. L. Carrington deals ably with the essential features of the hospital problem, especially as it affects Melbourne. He invites criticism, but I have none to offer. The matter is of such immediate importance, however, that I make no apology for the following appeal to our members. As Dr. Carrington indicates, the groundwork of the problem of medical service in Australia has been thoroughly traversed by Dr. D. M. Embelton and others in recent articles in your journal. To those who have not read Dr. Embelton's articles, I commend them. To those who have read them and understood their implication, I recommend an active interest and a willingness to cooperate in measures for the solution of the problem.

It would be futile for me to restate the case already so ably stated, but I am sure that a great deal of effort is still required to stimulate the interest of general practitioners, to insure their united action and also to make the more conservative members of the profession realize

that their own point of view does not necessarily represent the interests of the majority or of the public.

In the administration of many of our public hospitals a financial crisis has already arisen for which those responsible can see no remedy. The generous gifts by private benefactors constitute merely a temporary relief of symptoms. They do not strike at the cause of the trouble and indeed can only postpone the evil day of settlement.

Without going into the detailed causes which already are well known to your readers, it is a fact that the public have realized that in serious illness more thorough investigation and more efficient treatment can be obtained at the large public hospitals than can be obtained from private practitioners, except at a cost beyond the means of the average citizen. They are therefore demanding public hospital treatment as a right, are prepared to pay a certain amount towards their maintenance in hospital and in many cases believe that they are at the same time paying the doctors. This tendency has three results, all detrimental to the interests of the medical profession and indirectly of the public. First, the honorary medical staffs of the public hospitals are overworked in the hospitals, while their private practices and their incomes are proportionately reduced. Secondly, the general practitioners in the country and in the suburbs are becoming more and more divorced from the treatment of serious illness and are finding it more and more difficult to make a living and at the same time to do satisfactory work. Thirdly, the combined result of these first two tendencies is the presence of certain so-called abuses and a slackening of ethical principles which are too well known to need mention.

The law of the jungle is the survival of the fittest and the veneer of civilization which clothes even the best of us, is easily rubbed off when our bread and butter seem to be in danger.

Some of the leaders of our profession and many members of our councils and committees are so well established in practice that they are at least out of reach of actual financial stringency.

At the same time, by virtue of their metropolitan practices, it is generally to their advantage that the treatment of all serious illness should be centralized as far as possible in the big metropolitan private and public hospitals. It is inevitable that their medico-political opinions should be consciously or unconsciously biased by their own material interests. This is not in the least to their discredit, as they would not be normal human beings if it were not so; but there is a process which the psychologist calls rationalization, to which none of us is immune, and therein lies the danger.

Quite sincerely some think that they are forwarding the best interests of the profession as a whole and of the public in particular, while actually and unconsciously they are defending nothing but the citadel of their own security.

It may be the ideal solution to centralize the treatment of all serious illness, but this means nationalization of medical service to all but the wealthy and the increasing separation of the family practitioner from his patient at the time of his greatest need. The vast majority of our members believe that this is not the best solution and believe that nationalization would be disastrous in more ways than one and this is my own belief at present.

A large number of intelligent laymen feel that medical services should be provided as a State utility in the same way as water supply, sanitation, education *et cetera* and there is much to justify this view. My belief is that its practical application at present would not be beneficial either to the profession or the public, for the same reason that socialism in general is an impracticable ideal owing to the fact that human nature is not yet fitted for such a Utopian system.

Once having discarded immediate nationalization as a solution, and nearly all of us have discarded it, we have two other courses open to us that I can see. One is to drift on as we are doing and have a partial nationalization thrust upon us by force of circumstance, as is actually happening today, whether we admit it or not.

The other is to adopt Dr. Embelton's proposal for the profession to advocate and lead the way in organizing a scheme of compulsory insurance of all wage earners against sickness, so that all workers will be able to pay and doctors will be paid for their services to all but the indigent poor, to the advantage of the public and of the profession.

Hand in hand with such a scheme should go the provision of adequate community hospital accommodation where it is most needed, that is near the centres of the great industrial suburbs or groups of suburbs.

It all seems very simple, but the proposal is fraught with many serious difficulties and in order to have it put into effect two things at least are essential: the profession must stand united and we must have a leader. Leadership in this struggle, for struggle it must be, will call for high qualities and will demand great personal sacrifice, such as no man in active practice and with family responsibilities could contemplate.

Our leader or leaders must be well chosen and they must be assisted by a competent and well paid staff to do the organizing work. This will be an expense which we must meet collectively.

If as a result of our efforts a satisfactory scheme of insurance comes into being, we shall be richly rewarded.

In the near future a proposal will be put before the members of subdivisions in Victoria to find the funds necessary to organize such a campaign and incidentally to pay the campaign secretary. When each member meets with this proposal, I trust that he will realize that it is his last opportunity and his only means of averting what is otherwise an inevitable disaster to the general practitioner who has been in the past and who should be in the future the first and most essential unit in the war against disease.

To summarize the position in one sentence, we must choose now between two alternatives: nationalization or compulsory insurance, and if we choose the latter, we must provide the funds to organize it.

Yours, etc.,

A. P. DERHAM.

Melbourne.

December 12, 1929.

## Obituary.

### THOMAS WILLIAM WATKINS BURGESS.

THE death of Dr. T. W. W. Burgess on December 24, 1929, which was announced in our issue of January 5, has broken another of those frail links that bind the generation of medical practitioners of the end of last century with the present day. Thomas William Watkins Burgess was born in Liverpool, New South Wales, in 1861. Of his early life we have little information. His father, the late William Henry Burgess, was a prominent and well-known resident of Liverpool. Thomas Burgess was educated locally. At the Temperance Hill School at Hill End he gained several prizes. As a very young man he became apprenticed to a pharmacist at Wagga Wagga and later he followed the calling of pharmacist on his own account, having been admitted a member of the Pharmaceutical Society of New South Wales in 1884. Four years later he left Australia for England and in 1889 he entered the Medical School at Saint Bartholomew's Hospital. He was a popular student, quiet, hard working and always ready to extend a helpful hand to those of his contemporaries who stumbled on the uneven path of the medical course. He took a lively interest in all hospital and professional matters, but he did not indulge in sport while there was work of a more important kind to be done. In 1894 he passed the necessary examinations and entered his name on the Medical Register as a member of the Royal College of Surgeons of England, licentiate of the Royal College of Physicians of London and a licentiate of the Society of Apothecaries. He returned to New South Wales in 1895

and settled in practice at Wagga Wagga where he was already well known and greatly respected. At that time the late E. G. Tennant and Dr. E. H. Thane were in practice at that place. Thomas William Watkins Burgess had a very sound knowledge of his profession, was an excellent diagnostician and possessed that kindness of heart that is the foundation of the ideal relationship between a medical practitioner and his patients. He soon became firmly established. In the course of years his reputation became extended and an ever increasing number of people eagerly sought his aid in illness. He had the happy knack of retaining all his old friendships. To the poor he was adviser, counsellor and friend. He was appointed Government Medical Officer for the Wagga district in 1906 and was an honorary medical officer at the Wagga District Hospital. In masonic circles he attained both popularity and distinction. He held many offices of importance between 1901 and 1919. In addition he became a trustee of the Wagga Masonic Hall several years ago.

In 1919 during the influenza epidemic he fell a victim to the disease and was seriously ill for a time. Although he recovered from the attack, it left him with seriously impaired health. For a year he struggled against his difficulties and then he determined to retire from general practice. He moved to Sydney and lived at Vaucluse. He conducted a small practice for a time, but the state of his health was too unsatisfactory to enable him to work as he had previously worked. The people of Wagga displayed great regret when their beloved doctor left the district. And when nine years later the damage done in 1919 provided the basis for his final illness, the grief manifested by the same people proved how deep was their affection and how great were their esteem and respect for their former friend. The sympathy of the medical profession is extended to Mrs. Burgess, an English lady whom he married in the early days of his medical career, to Dr. Thomas Whittley Burgess and their two other sons.

### FRANCIS WILLIAM WATSON MORTON.

We regret to announce the death of Dr. Francis William Watson Morton which occurred at Toorak, Victoria, on January 26, 1930.

### JOHN CORBIN.

We announce with regret the death of Dr. John Corbin which occurred at Adelaide on February 1, 1930.

### JAMES WALTER STEWART MCKEE.

We regret to announce the death of Dr. James Walter Stewart McKee which occurred at Roseville, New South Wales, on February 2, 1930.

## Corrigendum.

In the article by Dr. A. Bolliger and Dr. J. W. S. Laidley in our issue of February 1, 1930, page 137, there is a typographical error due to a misinterpretation of a correction in the proof. The formula under quality of radiation should read:  $\epsilon = h\nu$ , wherein  $\epsilon$  is the quantum of energy corresponding to a frequency  $\nu$  (wave length  $= \lambda = \frac{c}{\nu}$ ,  $c$  being the velocity of light), and  $h$  is Planck's constant.

### TESTIMONIAL TO THE LATE BALDWIN SPENCER.

The attention of medical practitioners who were at one time students at the University of Melbourne of the late

Baldwin Spencer is drawn to the following circular letter. The committee finds it impossible to communicate with all those who have been under his tuition at some time in the past.

Some of the late Sir Baldwin Spencer's students and friends feel that some suitable memorial to him should be placed in the Zoology School of the University.

A small committee has been formed, of which Professor Agar, Professor Spencer's successor, is the Chairman and Sir Thomas Lyle the Treasurer. With the consent of the Chancellor and Council it has been decided to place a bronze medallion in the Zoology Library. Mr. Paul Montford has therefore been commissioned to carry this out and the cost will be one hundred guineas.

If you would like to join in this, will you send your contribution to Sir Thomas Lyle, Lisbuoy, Irving Road, Toorak, S.E.2.

Yours sincerely,

W. E. AGAR, Chairman.

T. R. LYLE, Honorary Treasurer.

## University Intelligence.

### THE UNIVERSITY OF SYDNEY.

At a meeting of the Senate of the University of Sydney held on February 3, 1930, Dr. C. G. Lambie, M.C., F.R.C.P. Edinburgh, Lecturer in Clinical Medicine at the University of Edinburgh, was appointed Bosch Professor of Medicine.

Dr. Harold R. Dew, F.R.C.S. England, of Melbourne, was appointed Bosch Professor of Surgery.

Dr. Hedley D. Wright, B.A. (Tasmania), D.Sc. (Edinburgh), M.R.C.P. Edinburgh, Lecturer in Bacteriology at the University College Hospital, was appointed Bosch Professor of Bacteriology.

## Diary for the Month.

FEB. 10.—Queensland Branch, B.M.A.: Medical Section.  
 FEB. 11.—New South Wales Branch, B.M.A.: Ethics Committee.  
 FEB. 11.—New South Wales Branch, B.M.A.: Post-Graduate Work Committee.  
 FEB. 13.—Victorian Branch, B.M.A.: Council.  
 FEB. 14.—Queensland Branch, B.M.A.: Council.  
 FEB. 18.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 FEB. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 FEB. 25.—Queensland Branch, B.M.A.: Obstetrical Section.  
 FEB. 26.—Victorian Branch, B.M.A.: Council.  
 FEB. 27.—South Australian Branch, B.M.A.: Branch.  
 FEB. 28.—Queensland Branch, B.M.A.: Council.

## Medical Appointments.

Dr. Edward James Brooks has been appointed Medical Officer, Office of the Director-General of Public Health, New South Wales.

## Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xx.

AUSTIN HOSPITAL FOR CHRONIC DISEASES, HEIDELBERG, VICTORIA: Resident Medical Officer.

BENEVOLENT SOCIETY OF NEW SOUTH WALES: Medical Vacancies.

BROKEN HILL AND DISTRICT HOSPITAL, NEW SOUTH WALES: Resident Medical Officer.

PRINCE OF WALES REPATRIATION GENERAL HOSPITAL, SYDNEY: Junior Resident Medical Officer.

SAINT MARGARET'S HOSPITAL, SYDNEY: Honorary Vacancies.  
 THE UNIVERSITY OF SYDNEY, CANCER RESEARCH COMMITTEE: Assistant Medical Radiotherapist.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 21, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Mount Isa Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

MEDICAL practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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